DRAFT FINAL REPORT

The Socio-Economic Impact of HIV/AIDS on Households in South Africa: Pilot Study in Welkom and Qwaqwa, Free State Province

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EXECUTIVE SUMMARY

- The impact of HIV/AIDS on households was assessed by means of a longitudinal (cohort) study of households affected by the disease. The CHSR&D established a formal relationship with various stakeholders in the two study sites to facilitate the recruitment of affected households. Verbal informed consent was obtained from infected individuals to interview the households to which they belong. The household impact of HIV/AIDS was determined by comparing over time the observed trends in health outcomes and socioeconomic variables in HIV/AIDS-affected households and a control group using statistical methods. For this purpose, a survey on the quality of life and the economics of affected and non-affected households was conducted. The results reported in this report are based on the analysis of data from two panels of interviews conducted with a total of 387 households.

- The proportion of households with an ill member at wave II was lower than at baseline (53% vs. 74% of affected households, and 15% vs. 19% of non-affected households). The proportion of affected households experiencing a death during the past 6 months was also lower than at baseline (12% vs. 20%).

- Patterns of morbidity and morbidity were similar in wave II to those described at baseline (wave I). Households affected by HIV predictably had a higher burden of morbidity and mortality. Affected households were more likely than non-affected households to have one or more ill members during the past month, and individuals in affected households were more likely to be ill. Affected households tended to have more ill members each. Diagnostic patterns among ill individuals were similar to the patterns at baseline: in affected households most persons had HIV-related illness (i.e. HIV/AIDS, tuberculosis and pneumonia) compared to very few in non-affected households. Ill members of affected households were less likely to have recovered or to be able to perform daily tasks and were more likely to be admitted to hospital. Most deaths in affected households can be attributed to HIV/AIDS, tuberculosis or

pneumonia. These findings indicate that, as at baseline, most illness and death in affected households was HIV-related.

- Government health services were the commonest source of health care. Ill members of affected households in most cases attended a government clinic and in some cases attended a government hospital, thus indicating a high prevalence of severe disease. In contrast, ill members of non-affected households were most likely to have attended a government clinic. In both waves, members of affected households who died were most likely to have attended a government hospital during their last episode, followed by government clinics.

- The use of health care during episodes of illness did not appear to impose a major direct financial burden on households, with the cost of treatment and transport related to health care-seeking behavior being relatively low. This shows that free government hospitals and clinics, which were the main sources of health care, protect households from some of the leading costs of illness and death. In contrast, funerals cost households a median of R4000-5000 (wave II) and R3000-4000 (wave II), thus representing a relatively substantial financial burden. Funerals were usually financed by own income, through the assistance of family or friends, and via funeral insurance.

- Most households with ill or dying members carried a burden of caring, and this was greater in affected than in non-affected households. More than 60% of ill people required someone to care for them at home, while more than half required someone to accompany them to health care. Relatively few caregivers lost income as a result, while very few caregivers came from outside the household, which means that most people was cared for by members of the household.

- Affected households on average are slightly larger than non-affected household in terms of household size. However, the dependency ratio in affected household are higher than that in non-affected households, implying that households affected by

HIV/AIDS in fact have a smaller supply of labor than non-affected households, with a larger proportion of the household consisting of children and elderly persons.

- Illness and death in affected households also occurred mainly among members belonging to the economically active population (age 15-49), again emphasizing the adverse effect of the epidemic on the supply of labor in affected households.

- Of the 19 households lost from the original sample, 14 (73.7%) could not be interviewed again due to reasons related to possible migration. In addition, 7 households migrated to a new residence in the 6 months between the two rounds of interviews. The results emphasize the extent to which mortality in particular seems to induce household migration among affected households.

- The extent of out-migration of household members was slightly higher in affected than in non-affected households. It was primarily younger persons (i.e. teenagers) that had left affected households, compared to young adults having left non-affected households. A third or more of persons that had left the household was parents, grandchildren, siblings or other family of the head of the household. Persons that had left affected households were more likely to relocate to areas relatively close to home, while persons that had left non-affected households were more likely to relocate further from home. In the case of the main reasons for having left their respective households, the reasons were mainly related to normal migration in the case of non-affected households, i.e. employment, change of residence, marriage or education. In affected households more than a third of persons moved because of relatively uncommon reasons, i.e. to stay with parents, other family or friends, or because of illness or death.

- A fifth of persons did in some way contribute to the household before leaving, with a larger proportion (21.3%) of members that had left affected households having contributed to the household compared to non-affected households (14.7%). The majority (88.9%) of these persons contributed to the household in monetary terms.

The departure of persons from affected households represents a relatively greater loss to households in terms of foregone contributions than is the case in non-affected households.

- Affected households are poorer than non-affected households, regardless of whether income and expenditure is measured at the household or individual level or in adult equivalent terms. A larger proportion of affected households were classified as poor in both waves, thus suggesting that poverty may be relatively more endemic in the affected than in the non-affected group of households.

- Affected households are more dependent on non-employment sources of income (which consists primarily of government grants but also includes the value of own produce consumed by the household), while a smaller proportion of their income consists of employment income.

- Affected households spend less on food than non-affected households, both on aggregate and in per capita and adult equivalent terms. In the longer run, this may contribute to malnutrition amongst household members.

- Affected households, in terms of the composition of household expenditure, allocate relatively MORE of their resources to expenses on food, health care, household maintenance and rent and LESS to education, clothing, transport, personal items and durables when compared to non-affected households. Comparisons in expenditure patterns relative to the incidence of illness and death in the two rounds of interviews in general supports these findings regarding differences in expenditure patterns.

- Affected households on a monthly basis save approximately 40% less than non-affected households. Non-affected households have considerably higher levels of current debt than non-affected households. There are no considerable differences between the monthly repayment of debt by affected and non-affected households,

which implies that the servicing of current debt may put a relative larger burden on affected than non-affected households, given their lower levels of income.

- The most frequent responses of households to financial crises seem to be borrowing, followed by the utilization of savings and the sale of assets, with a considerably larger proportion of affected households that had utilized these strategies also being affected by illness and/or death. The proceeds from these strategies are relatively greater relative to income and expenditure in affected households than is the case in non-affected households. Relatively few households that had experienced a recent death received a lump-sum payment or inheritance following the death, underscoring the few means poor households have to cope with such deaths.

- In more than 60% of cases the money was borrowed from relatives and friends, while just more 20% of loans were obtained from money- or micro-lenders. The borrowed money was in most cases used to buy food. A larger proportion of affected households indicated that the money was used to pay for funerals and medical expenses, whereas a larger proportion of non-affected households indicated that the money was used to pay for education, clothing and other expenses.

- A larger percentage of affected households have in the six months prior to the interview utilized savings than was the case in non-affected households. The two purposes for utilizing savings sited most often by affected households were to pay for funerals and medical expenses, while non-affected households mainly used savings to pay for education and the maintenance of assets. The magnitude of dissaving is considerable. Affected households utilized 21 (wave I) and 46 (wave II) months of current savings, whereas non-affected household only utilized 5 months of current savings.

- Given that households on average owned relatively few assets, only a small percentage of households sold assets in the recent past. Households primarily sold household appliances or furniture. The reasons these assets were sold for do not

outright suggest that HIV/AIDS plays an important role in causing affected households to sell assets. Proceeds from the sale of assets in most cases were used to pay for food or to repay debt. However, this may only indicate that affected households that do sell assets actually do so to pay for expenses they can no longer afford since having to pay for medical expenses and funerals from available resources.

- Households were more likely to have utilized savings where a larger number of deaths had occurred in the recent past, in households where expenditure on average was higher and in households without access to medical aid. Coping financially in one or more of these ways was also more likely in rural than in urban areas, given that rural areas are generally poorer than urban areas.

- The total cost of morbidity to households are relatively low where unemployment levels are very high and household members are primarily cared for by family members with no direct loss of income.

- A death puts a much greater financial burden on a household than does illness. In a worst case scenario, the burden on affected households amounted to 3.4 to 4.3 times average monthly household income and 5.7 to 7.2 times average monthly household expenditure. Under alternative assumptions, the relative magnitude of this burden is lower but remain relatively high. Unlike in the case of illness, the cost of a death to households remain high even where unemployment levels are very high and household members are primarily cared for by relatives with no direct loss of income. This can be attributed to the fact the funeral costs are very high and represent the largest share of the cost of mortality.

- A very small percentage of children aged 7-13 were not attending school at the time of the interviews, whereas a slightly larger proportion of children aged 14-18 years were not attending schooling. Non-attendance was higher among children in affected households than among children belonging to non-affected households. HIV/AIDS-

related factors featuring as possible predictors of non-attendance include belonging to households that had experienced a larger number of recent deaths or that include more ill persons, while the gender and age of the child, the gender and age of the head of the household, household size and urban/rural location in some models also explain part of the difference in enrollment status.

- More than a quarter of children aged fifteen years and under has lost their mother or father, with the rate of orphan hood increasing considerably in the 6 months between the two rounds of interviews. Although a larger number of orphans are to be found in affected households, non-affected households also shelter a relative large number of orphans. Only a few orphaned children were not attending school at the time of the interviews. Households that shelter orphaned children generally are headed by females and by persons that are widowed.

- Poverty in combination with the HIV/AIDS epidemic seems to represent a major threat to the livelihood of households. Affected households have been shown to be poorer than non-affected households, with poverty being relatively more endemic among affected households. The single most important predictor of poverty status is lack of access to medical aid. In addition, there is some evidence that households affected by death and/or by illness were more likely to be poor, as were households that share fewer years of schooling between its members, that having a smaller number of employed members, that are smaller, that are headed by females, that reside in rural areas, and that are in the affected as opposed to the non-affected group.

BACKGROUND AND PROBLEM STATEMENT

The HIV/AIDS epidemic poses a severe threat to the economies of developing countries, and those on the African continent in particular. South Africa, which is being affected fundamentally by the epidemic, is no exception. By the end of 1997, a total of 2.8 million people were estimated to be living with HIV/AIDS in South Africa. By 1999, this figure had increased to 3.5 million. The estimated prevalence of HIV/AIDS among the country's adult population (11.8 per cent) is amongst the highest in the world (ILO, 2000). According to the Metropolitan-Doyle model, the number of South African living with HIV/AIDS will increase from 160 000 to almost one million between 2000 and 2010. The annual number of AIDS deaths is estimated to increase from 120 000 to between 545 and 635 thousand between 2000 and 2010 (Abt Associates, 2000: 8-9). The number of children younger than fifteen years orphaned by AIDS has been estimated to be 800 000 by 2005, rising to more than 1.95 million by 2010 (Abt Associates, 2000: 11). These infected individuals and affected children all belong to individual households and their deaths will have a significant impact on their families. Hence, the epidemic will have a considerably impact on households in South Africa.

Over the next ten to fifteen years, the epidemic has the potential to erode development gains made in past decades. As the disease takes its toll on the economically active population, production and demand are expected to decline, which will slow down economic growth and development. The disease will also have serious budgetary implications in terms of increased government expenditure on health care and social security, which will be aggravated by the decline in government revenue due to declining economic activity (Barnett and Whiteside, 1998; ILO, 2000). These effects of HIV/AIDS are not accounted for in the government's existing framework of economic policy, i.e. the Growth, Employment and Redistribution (GEAR) strategy and Reconstruction and Development Programme (RDP). In fact, GEAR currently envisages continued increases in economic growth, job creation and redistribution over the next three financial years (National Treasury, 1999). This is an unlikely scenario since the impact of HIV/AIDS is expected to become manifest during the next five to ten years. The AIDS epidemic

generally lags about eight years behind the HIV epidemic, which explains why the impact of HIV+ prevalence rates currently observed will only really materialize in five to ten years' time.

Research into the socio-economic impact of HIV/AIDS on households and communities is crucial in guiding current and future policies and intervention strategies intended to absorb this impact. From an economic point of view, the primary impact of the disease manifests mainly among individual economic agents, i.e. individuals and households. An assessment of the socio-economic of HIV/AIDS would therefore have to start on this micro-level of analysis. Aspects of such assessment, amongst other things, will include determining how the disease affects the economic decisions and position of individuals and households over time, i.e. how they generate, save, invest and spend income in response to the disease, and how this in turn affects their quality of life. To date no comprehensive, longitudinal study of the impact of HIV/AIDS on such a micro-level of analysis has been conducted in South Africa, neither in an urban nor in a rural setting. Arndt and Lewis (2000), furthermore, have performed a preliminary assessment of the macroeconomic implications of HIV/AIDS for South Africa. Yet, their macroeconomic model still fails to allow for the effects of a number of important microeconomic impacts which are endogenous to such model, amongst others that of asset sales and investments in human capital. This failure to a large extent derives from the lack of household level economic data with which to quantify these assumptions. Work on the macroeconomic model maintained by the Department of Finance faces similar constraints (Compernolle, 2000).

OBJECTIVES

The project had the following broad objectives, which will be discussed in more detail later in this document.

- develop and test a methodology for assessing the socio-economic impact of HIV/AIDS at the individual and household level in both an urban and a rural setting;

- identify and capture the standard minimum criteria and indicators to be incorporated into the methods of methodologies of studies of this nature;

- describe and evaluate the impact of different informal coping strategies and support systems adopted by individuals, households and communities, as well as that of formal HIV/AIDS-related interventions of national and provincial government departments and local authorities (TLCs), in terms of their impact over time on the quality of life of affected households living in both urban and rural areas;

- inform economic growth analyses and studies on the macroeconomic impact of HIV/AIDS by projecting information about the microeconomic impact of the disease onto trends in labor market participation, spending, savings and investment; and

- propose a framework for national 'best practice' for improving the quality of life of affected households in urban and rural communities based on existing macro- and micro-, as well as formal and informal responses to HIV/AIDS.

APPROACH AND METHOD

(i) Population

The impact of HIV/AIDS on individuals and households was assessed by means of a cohort study of households affected by the disease, and compared with a control group of matched households non-affected by the disease. It was conducted in two local communities in the Free State province, one urban (Welkom) and one rural (Qwaqwa), in which the HIV/AIDS epidemic is particularly rife. Of the nine provinces in South Africa, the Free State has the second highest prevalence of HIV/AIDS and is also the province with the second highest rate of increase in the prevalence of HIV/AIDS (Cohen, 2000). Welkom is situated in Region C, one of six former health regions in the Free State. In 1997, Region C had the highest HIV prevalence among antenatal clinic attendees of all the six health regions in the province, i.e. 26.6 per cent. HIV prevalence in this region is the second highest in South Africa. The prevalence of HIV/AIDS in the former Qwaqwa is also very high compared to other health districts. Because of high unemployment, men from this area are often employed as migrant laborers in towns and cities away from their homes. In addition, the lack of infrastructure, poor services and poor living conditions characteristic of this area further increases the vulnerability of the local population to the HIV/AIDS epidemic.

According to the report entitled *Measuring Poverty* published by Statistics SA early in 2000, the Welkom magisterial district is the third richest in the Free State province, with a headcount poverty ratio of 0.34 and average monthly household expenditure of R2364. The magisterial district of Witsieshoek, which is within the boundaries of the former Qwaqwa, is the poorest in the Free State province and also ranks amongst the poorest in the country. The headcount poverty ratio in this district is 0.69, while average monthly household expenditure amounts to R807. Thus, the particular selection of study sites also allows one to compare the household impact of HIV/AIDS between communities that differ substantially in terms of the level of poverty (Statistics South Africa, 2000).

(ii) Sampling

The identification of participants in the study, particularly of affected households, requires ethically meticulous research conduct. The myths and secrecy surrounding the disease, as well as the fear of stigmatization and protection of the identity of people living with HIV/AIDS, pose a real challenge for research of this nature since it complicates the identification and selection of participants. The participation of households in this research project is voluntary and based on confidentiality and informed consent and the study is introduced to respondents as such during the fieldwork. The research protocol was submitted to the Research Ethics Committee of the University of the Free State for approval in order to safeguard the rights of the participants and to ensure ethical standards of research. The committee has approved the study. Letters of approval have also been obtained from the following individuals in the Department of Health, all of which have offered their cooperation and expressed their interest in the findings of the project:

Dr. N. Simelela, Chief Director: HIV/AIDS and STDs
Prof K.C. Household, Head of Department of Health, Free State Province
Mrs R. Sibeko, District Health Manager DC19 (Qwaqwa)
Me N.J. Jolingana, District Health Manager DC18 (Welkom)

The CHSR&D established a formal relationship with various stakeholders in the two study sites to facilitate the recruitment of affected households, including the Department of Health and various NGOs and CBOs active in HIV/AIDS work. The research team met with a variety of stakeholders in each of the two areas during the initial phases of the project. These meetings had three purposes: to inform the stakeholders of the research projects and its aims and objectives, to involve the stakeholders in the recruitment of fieldwork managers and fieldworkers, and to involve the stakeholders in the recruitment of participating households. In the research team's opinion, the fact that the fieldwork was managed through and conducted by parties involved in HIV/AIDS-related work in these communities adds much value to the project. The questionnaire was also circulated to

these stakeholders for comment, which is important in terms of availing them the chance to ensure that the data generated by the project is of use to them in planning and managing their activities. Through this network as many households as possible that are affected by HIV/AIDS were identified, although in practice the number did not exceeded the 100 target by far. Such approach to sampling avoids the sensitive issue of testing the members of participating households for HIV and also ensures that the selected households are indeed affected by HIV/AIDS. The manager of the fieldwork teams in each of the two study sites was responsible for coordinating this process and obtained verbal consent from each of the infected individuals belonging to the households included in the sample. The manager was also responsible for ensuring that the identified households come from a range of neighborhoods/villages in the area, thus providing the researchers with a sample that reflect differences in demographics and standards of living in the two study sites.

The manner in which the participating households were sampled to a large extent ensures that affected households are indeed affected by HIV/AIDS. However, many infected individuals have not disclosed their status to their families, which means that the study could not be introduced to respondents as an HIV/AIDS study and therefore inadvertently reveal the identity of the infected person to other household members. Households interviewed as controls may also be discouraged to participate in the study if directly introduced as an HIV/AIDS impact study, with particular significant problems being experienced if the household become affected in later phases of the project. Hence, the study was introduced to respondents as 'a study of the impact of morbidity and mortality on households in the Free State province'. The research team found the issue of disclosure to be an important obstacle in the recruitment process and other researchers involved in similar projects are encouraged to find innovative solutions to this problem. Possible ways to perhaps deal with this problem are using the infected individual rather than the household as unit of analysis OR allowing more time for recruitment to actually facilitate a process of disclosure and involve the entire household in the data collection process.

In order to control for the effect on households of socioeconomic changes not related to HIV/AIDS, a control group of 100 households that are not affected by HIV/AIDS was recruited to voluntarily partake in the study. These households were recruited in the following manner. For each affected household that the fieldworker visited for interview purposes, the fieldworker also interviewed a household living in close proximity to the affected household, e.g. a neighboring household. In order to ensure that this household is not affected by HIV/AIDS the fieldworker first asked the respondent a few key questions, i.e. whether someone in the household is being treated for TB or whether someone has been hospitalized with pneumonia in the past six months. Initially, a direct question about whether someone in the household has HIV/AIDS was included in the set of key questions. However, this question was dropped once it became clear during the practice interviews that this question caused respondents to refuse to participate, possibly because of the stigmatization that still surrounds the epidemic. If the respondent answered any of these questions in the affirmative (with a 'YES'), the fieldworker moved to the next household until they found a household for which none of the key questions were answered in the affirmative. Hence, it meant that the fieldworker often had to visit a number of households before they successfully identified a control for each affected household. Fieldworkers were trained to take appropriate care in allowing time for this activity when conducting their interviews. Fieldworkers were also trained to take particular care in recording the address and details of this household. This is crucial for the purposes of revisiting this household six months later during the second wave of the data collection phase of the project.

In order to keep track with interviewed households, all respondents were supplied with a paid, self-addressed postcard on which any change in address can be recorded and mailed to the research team. During the first wave of interviews in May/June 2001 a total of 406 interviews were conducted with sampled households. During the second wave of data collection, interviews were conducted with 387 households, which translates into an attrition rate of 4.7%. Of the nineteen households that could not be interviewed during the second round of interviews, eleven households could not be located insofar as their current whereabouts were unknown. Three households had refused to participate in the

second wave of interviews, while three households moved to towns outside of the study sites (the project did not entail tracking participants that move outside of the study site). Two households could not be interviewed again insofar as the respondents that were interviewed during the first wave of interviews had passed away. The reasons for attrition in the original sample illustrate the manner in which migration and the disintegration of households, which are important effects of the epidemic, can act to erode the sample population. During subsequent waves of data collection, great effort will be made to keep track of the current sample of households, while the sampling of additional households will be considered insofar as not to let the sample become unsustainable.

It is envisaged that households in the control group that are affected by HIV/AIDS over the three year study period will become part of the sample of affected households. In case the increasing spread of HIV/AIDS and rising AIDS deaths threaten the sustainability of the control group in later phases of the longitudinal study, new respondents will be sampled from the selected communities to act as controls. Since the research will require the continued participation of those households that originally agree to become part of the study, the payment of a minimal participation fee (R150 per household per survey visit) to those households is expected to ensure sustainability of the sample over the three years.

(iii) Data collection and analysis

The impact of HIV/AIDS on households was assessed by means of a longitudinal (cohort) study of households affected by the disease. The household impact of HIV/AIDS was determined by comparing over time the observed trends in socioeconomic variables in HIV/AIDS households and a control group using statistical methods. For this purpose, a six-monthly survey on the quality of life and the economics of affected and non-affected households was conducted. Interviews were conducted with one respondent only, namely the "person responsible for the daily organization of the household, including household finances". The results reported in this report are based on an analysis

of the data from the two panels of interviews conducted with the 387 households interviews in both waves I and II of the survey.

The instrument used for this purpose explores the issue mainly in quantitative terms. The instrument explores the economic impact of the disease on, amongst other things, household income and expenditure patterns. It also explores the experiences of households affected by HIV/AIDS with regard to their response to it with regard to caring for affected household members, utilizing certain services, and coping with the impact on their socioeconomic circumstances. The design of the instrument was informed by a literature review of the methodology of household impact studies, existing questionnaires employed in other studies of this nature[1], focus group sessions with key informants, and the piloting and revision of the draft instrument. For the purposes of comparative analysis, the instrument used for data collection in affected households is the same as that employed in collecting data from non-affected households, although certain sections of the questionnaire (notably that on morbidity and mortality) did not always apply to these households.

A first draft of the questionnaire was completed in early April 2001. Before finalizing the questionnaire and having it translated, a first draft was circulated for comment amongst stakeholders from government departments, NGOs, and CBOs, as well as other academics, which was integrated into the final instrument with issues raised in the pre-testing of the questionnaire. The socioeconomic questions/sections in the questionnaire was standardized in accordance with the recommendations put forward following a meeting between the researchers from different AIDS research projects in Johannesburg toward the end of April 2001. The questionnaire was translated into Sesotho and Afrikaans, which together with English presents the major languages spoken by the population residing in the two study sites, after which final changes were made following problems arising from the pre-testing of the questionnaire in Bloemfontein. A training

[1] The questionnaires that could be accessed for this purpose include those employed in the longitudinal household study conducted in Kagera, Tanzania by the World Bank between 1990 and 1994, as well as the questionnaires employed in two household studies conducted respectively in Zambia and Zimbabwe.

manual was compiled for the fieldworkers, editors and fieldwork managers following the finalization of the questionnaire.

A common characteristic of household impact studies is to also collect data from other stakeholders, using techniques other than household interviews. To this end the research team also embarked on the following data collection efforts. In terms of qualitative methods, six focus group discussions with women were conducted in Welkom and Qwaqwa (three in each site) to obtain additional information on coping and support from the general population in the two study sites. The focus groups were conducted by two female, junior researchers attached to the CHSR&D, namely Tanja Arntz and Dibolelo Molehe. Tanja Arntz will employ this information in combination with data from the household survey in her dissertation for her Masters in Development Studies, which focuses on coping strategies and support mechanisms adopted by affected families. Jacob Molelekoa, a black master student in the Department of Economics, conducted an investigation into the cost of home-based care in Welkom and Qwaqwa, which to some extent will inform policy proposals about the extension of home-based care to affected families. He is conducting this research as part of his research for his master's dissertation. These research efforts contributed to building capacity amongst black and female researchers at the University.

Following an interview process, a fieldwork team consisting of a manager, editor and five fieldworkers was recruited in each of the two study sites, mainly from amongst persons working as volunteers in HIV/AIDS programs. On completion of the training, each member of the research teams signed a contract that stipulates the conditions of services and other project regulations. Members of the fieldwork teams were issued with letters and certificates testifying to their participation in the project on completion of the fieldwork. The research teams that were recruited for each of the two areas during the two waves of data collection consisted of the following individuals (for purposes of capacity building and the involvement of previously disadvantaged persons in the project, please note that all the recruited persons are of PDI status), with members being replaced where members relocated to other areas, where members could not participate in the

project anymore due to work or other commitments, or where member's performance were deemed to be unsatisfactory:

Welkom

Fieldwork managers	Mr J. Molefi (wave I)
	Ms G. Moeti (wave II)
Editor	Ms K.D. Rankhakile
Fieldworkers	Ms E. Van Rooi
	Mr D.T. Tlali
	Ms D. Chabeli
	Ms. G. Moeti
	Mr J. Moholobela
	Ms S. Hallam
	Mr O. Kgware
	Ms M. Nyakane
	Ms H. Van Wyk

Qwaqwa

Fieldwork manager	Mr N. Khoapa
Editor	Ms K.R. Mofutsanyana
Fieldworkers	Ms M. Maduna
	Ms D. Masindwa
	Ms M. Masisi
	Mr P. Mofokeng
	Ms T. Motsatse
	Mr S. Ntsane

All members of the two fieldwork teams had received the basic HIV/AIDS training provided to AIDS counselors and volunteer workers by ATTIC by the time the fieldwork commenced. A team of researchers conducted three-day training sessions in Qwaqwa and Welkom with the two fieldwork teams prior to each of the waves of data collection. The

training consisted of classroom training, scenarios and practice interviews. A researcher spent two more days with the fieldwork team when the fieldwork commenced to further guide the fieldwork team in the data collection process and manage the logistics and administration. The research team in their efforts to also employ fieldworker training as a tool for capacity building put much effort into guiding the fieldwork teams during the data collection process. A researcher paid regular visits to the area to perform quality control checks, to assist the editor with the editing of questionnaires, and to ensure that the process is on track. The two waves of data collection in the two study sites were respectively completed in May/June and November/December 2001.

SOCIO-ECONOMIC PROFILE OF SAMPLE POPULATION

In order to determine to what population the results described in this report about the socioeconomic impact of HIV/AIDS on households can be generalized, it is important to explore the main demographic and socioeconomic circumstances of the households included in the original sample of 406 households. These details are reported in Tables A to F in the Appendix. In essence, the group of households included in this household impact study can be described as follows:

- The households are mainly African and Colored (88.4% and 11.3% respectively of the total sample), while only one White household was interviewed. Nationally the African and Colored populations respectively represent 76.7% and 8.9% of the country's population.
- A slightly larger proportion of households is headed by females (53.7% compared to 46.3% headed by males).
- The persons heading these households are aged 40-49 years (25.4%), 30-39 years (24%), 50-59 years (19.3%) and 60-69 years (13.3%), which represents a relatively normal distribution.
- A fairly large proportion of persons heading households are widows/widowers (30.8%, while 40.4% are married (civil or traditional), 14.5% are divorced/separated, and 10.8% have never been married.
- A larger share of household members is female (57.5% compared to 42.5% of household members that are male). According to the 1996 population census, 48.1% and 51.9% of the population were respectively male and female.
- Households on average have just more than 30 years of schooling amongst them, with the largest proportion of households having 20-39 years of education. Given the average household size of nearly five, this means that one is looking at relatively poorly educated households.
- Few households have access to medical aid and only 15% of households include a member with access to medical aid. Fewer affected households had access to medical

aid compared to non-affected households (9.9% versus 20.1%), which as explained below are mainly due to the sampling design.

- Most households indicated that they feel very safe (50.7%) or rather safe (27.8%) living in the areas where they reside, while only a very small proportion of households indicated that they feel very unsafe (4.4%) or not safe at all (3%).
- The majority of households live in one dwelling (76.6%), while 19.4% of households indicated that they live in more than one separate dwelling. Only a small percentage of households (3.9%) shared a dwelling with another household, more so in the urban settting (Welkom) than in the rural setting (Qwaqwa).
- Nearly 80% of households lives in a main dwelling on a separate stand or yard, while 13% live in some kind of informal dwelling (informal dwelling in backyard or informal settlement). A small proportion of households (4.9%) live in traditional dwellings, representing households in the rural sample (Qwaqwa).
- The main dwellings in which households live on average consist of four rooms of which two are used for sleeping.
- Just more than 90% of households own the dwelling in which they reside. Households living in dwellings not owned by the household mainly live in dwellings owned by a private owner renting out their property.
- The majority of respondents (89.2%) indicated that they have not lived at their current place of residence since birth. Of respondents who had before resided in a different place than where they were born, 64.6% previously resided in urban areas, 23.1% in rural areas and 11.1% on commercial farms. The main reasons these respondents sited for having changed their place of residence were moving to a new house (42.1%), work-related reasons (32%) and marriage-related reasons (20.9%). In terms of their place of birth, 45.7% of respondents were born in urban areas, 28.7% in rural areas and 24.8% on commercial farms. The reason respondents moved from their place of birth was mainly having moved to a new house alone or with their family (59.1%) or because of reasons related to work (18.5%) or marriage (13.5%).
- Only in a relatively small proportion of households do someone own a cellular phone (29.6%) or does the household have a telephone in their dwelling (27.3%). Only 12% of households have access to either a cellular phone or a telephone at home.

- Almost all households have access to sanitation, with 39.9% of households having access to a flush toilet in their dwelling, 31.4% having access to a pit latrine on site and 26% having access to a flush toilet on site.
- Just more than 75% of households have access to piped water, be it in the dwelling (47.2%), on site (23.2%) or at neighbors (4.7%). However, nearly 25% of households were dependent on a public tap for their supply of water.
- In terms of refuse removal, 70.2% of households had their refuse removed by their local authority are least once a week, while 18% of households had an own refuse dump and 8.6% of households had no refuse removal.
- The source of energy for lighting was mainly electricity (77.6%), while 19% of households used candles (mainly in rural areas) and 3.4% used paraffin. Electricity was again the main source of energy for heating (47.1%), while 23.1% of households, again mainly rural households, used coal and 17.1% used paraffin for heating as fuel source for heating. The source of energy for cooking reflects a similar picture, with 62.3%, 24.1% and 10.6% of households respectively using electricity, paraffin and coal as energy source. Those households that used coal as energy source for cooking all live in rural areas (Qwaqwa).

Evident from the above is that although the sample in certain instances closely reflects the socioeconomic profile of the national population (e.g. male/female distribution of the population), it in most cases differs distinctly from the general South African population. The profile of the sample of households included in this impact study can largely be attributed to the sampling design. Given that affected households were sampled from networks and/or organizations involved in counseling, home-based care and public health care and mainly in poorer communities, the sample does not include affected households that mainly utilize private health care services. Moreover, the study was conducted in one specific province (Free State) and in two selected sites only (Welkom and Qwaqwa). However, the fact that South Africa's poor, predominantly Black population face relatively high HIV prevalence rates and are particularly vulnerable to the epidemic and therefore dependent on support from the public service sphere, means that the findings

and policy recommendations put forward in this report are especially relevant to informing government's responses to HIV/AIDS.

KEY CONCEPTS FOR COMPARATIVE ANALYSIS

The results presented in the subsequent pages of this documents draws comparisons between households in terms of the socioeconomic impact of HIV/AIDS based on five stratifications of the data. These concepts and terminology can be defined as follows.

- **HOUSEHOLD**: Households were defined in terms of the standard definition employed by Statistics South Africa in the October Household Survey, i.e. "a person or a group of persons who live together at least four nights a week at the same address, eat together and share resources".

- **URBAN** versus **RURAL** comparisons: This refers to the distinction between households living in Welkom and households living in Qwaqwa. Welkom is a relatively large urban settlement in the Goldfields in the Eastern Free State. Qwaqwa is a former homeland, which is still governed mainly by traditional leadership in an area where communities reside in 42 smaller villages. The distinction therefore between urban/rural is based on the nature of governance structures in the two areas rather than the physical housing infrastructure characteristic of these areas. In Qwaqwa for example the majority of the population reside in formal dwellings (refer page elsewhere), yet the community remains a predominantly rural one.

- **AFFECTED** versus **NON-AFFECTED** comparisons: This refers to the distinction between interviewed households in which at least one person is known to be HIV-positive as opposed to interviewed households residing in close proximity in the affected households which was sampled as controls (see discussion elsewhere). The former households were recruited purposively from established networks and/or organizations in the two areas involved in HIV/AIDS. In the case of the latter households no one in these households is known to be HIV-positive insofar testing could not be conducted, nor was any member of these households presently treated for tuberculosis or hospitalized for pneumonia in the month before the interview.

- **ILLNESS** versus **NO ILLNESS** comparisons: This refers to the distinction between households in which one or more members had been continuously ill in the month preceding the interview as opposed to households where no member had been continuously ill in the month preceding the interview.

- **DEATH** versus **NO DEATH** comparisons: This refers to the distinction between households in which one or more members had died in the six month preceding the interview as opposed to households where no member had died in the six month preceding the interview.

- **WAVE I** versus **WAVE II** comparisons: This refers to the comparison of outcomes between the data collected during the first round of interviews (May/June 2001) and that collected during the second wave of interviews (November/December 2001). In some cases the results are reported separately for the two samples of households (i.e. 406 and 387 households respectively being interviewed in waves I and II of the survey), while in other cases outcomes are compared only across the 387 households interviewed in both rounds of interviews.

In the subsequent pages, the results and main findings of the project are elaborated on. Section A focuses on health outcomes, which is important in establishing whether affected and non-affected households actually represent a foundation for determining the impact of HIV/AIDS and for informing certain aspects of health policies related to coping with the HIV/AIDS epidemic. Section B focuses on various aspects of the socioeconomic impact of HIV/AIDS on households, e.g. the supply of labor at the household level, expenditure patterns, financial coping strategies, and issues related to the impact on children. The conclusions are discussed in the final part of the report.

METHODS

Proportions of households (or household members) were compared between affected and non-affected households, and between Welkom and Qwaqwa, using Pearson χ^2 or exact tests. Outcomes were where possible compared at both individual and household levels. Comparisons are drawn between the changes in outcomes between waves I and I of the survey, with the focus being on the 387 households interviewed in both the waves.

Multiple logistic regression analysis was used to determine the independent influences of certain explanatory variables on selected outcomes related to morbidity, mortality and the socioeconomic impact of HIV/AIDS, adjusting for influential personal, household and area characteristics. Variables were retained in each model if they significantly improved the respective model.

Logistic regression models with individual level outcomes were adjusted for clustering of outcomes at household level, using Stata statistical software. Intra-household correlation of each outcome was expressed as an intra-cluster correlation coefficient (ICC). The ICC is the proportion of the outcome's total variance accounted for by inter-household (as opposed to inter-individual) differences.

Statistical significance was defined at the 5% level and in some cases also at the 10% level.

SECTION A: HEALTH OUTCOMES

MORBIDITY AMONG HOUSEHOLD MEMBERS DURING THE PAST MONTH

(i) Prevalence of illness among households and among individuals

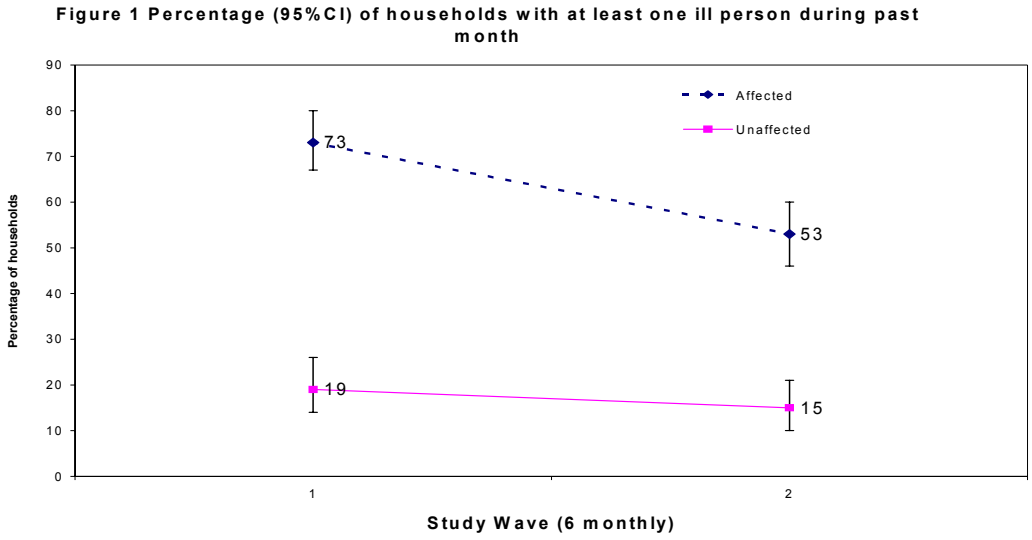
The prevalence of reported illness decreased from baseline to wave II, especially among affected households (Table 1). At wave II, 34% (132/388) of households included at least one member who was ill during the past month, while 8.2% of household members were ill during this period. Affected households were over three times as likely to have had an ill member (53% versus 15%) and members of affected households were over three times as likely to be ill (12% versus 4%). This inequality was similar within Welkom and within Qwaqwa, which each faced a relatively similar prevalence of illnesses.

Table 1: Proportions of households experiencing any morbidity in wave I and II

	Welkom		**Qwaqwa**		**Total**		**P***
	Affected	**Non-affected**	**Affected**	**Non-affected**	**Affected**	**Non-affected**	
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	
Sample	(N=79)	(N=89)	(N=114)	(N=103)	(N=194)	(N=194)	
Wave I	61 (77)	18 (20)	82 (72)	19 (18)	143 (74)	37 (19)	<0.001
Wave II	46 (58)	12 (13)	57 (50)	17 (17)	103 (53)	29 (15)	<0.002

* Affected versus non-affected using chi square test

Compared to baseline, the proportion of households with at least one ill person decreased in both affected and non-affected households (Table 1 and Figure 1).



Individuals in affected households were about three times as likely to have been ill during the past 6 months (Table 2). The risk of illness among individuals was lower at wave II than at baseline, in affected and non-affected households.

Table 2: Proportions of individuals experiencing any morbidity in wave I and II

	Welkom		Qwaqwa		Total		P*
	Affected	Non-affected	Affected	Non-affected	Affected	Non-affected	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Sample	(N=571)	(N=455)	(N=454)	(N=429)	(N=1022)	(N=884)	
Wave I	54 (9.5)	21 (4.6)	63 (14)	11 (2.6)	205 (20)	55 (6.2)	<0.001
Wave II	96 (17)	23 (5)	108 (24)	31(7)	117 (11)	32 (3.6)	<0.001

* Affected versus none-affected using chi square test.

(ii) Predictors of illness among households and among individuals

In a multiple regression model (Table 3), members of affected households in wave I were 4 times more likely to have been ill compared to members of non-affected households, and such illness was 30% more likely in Qwaqwa than in Welkom. Risk of illness increased by about 14% ($OR=1.016^{10}=1.14$) for every 10-year increase in age, and

decreased by about 18% (OR=0.98^{10} =0.82) for every R1000 increase in household income. Individuals with a degree or diploma, and those too young to attend school, were more likely to be ill than those with only primary education (i.e. grade 1-7), adjusted for age. Those not eligible for employment were less likely than employed individuals to be ill. Individuals' sex, racial category and medical aid cover had no independent association with illness. There was no interaction between affected status and urban/rural location.

Table 3: Predictors in wave I of illness among household members during the past month: multiple logistic regression model*

Explanatory variable	**Odds ratio**	**95% confidence interval***	**P***
Household level			
Affected versus non-affected	4.2	(2.8-6.2)	<0.001
Rural versus urban	1.3	(1.0-1.8)	0.09
Income (per R100/month)	0.98	(0.97-1.0)	0.01
Individual level			
Age (per year)	1.03	(1.02-1.04)	<0.001
Education level			
• Tertiary versus grade 1-7	2.8	(1.4-5.4)	<0.001
• Too young versus grade 1-7	5.6	(2.9-10.8)	<0.001
• Grade 8-10 versus grade 1-7	1.4	(0.9-2.1)	0.11
• Grade 11-12 versus grade 1-7	1.0	(0.6-1.6)	0.97
• None versus grade 1-7	1.1	(0.5-2.1)	0.89
Employment status			
• Unemployed versus employed	1.1	(0.7-1.6)	0.77
• N/A versus employed	0.46	(0.22-0.95)	0.04

* Values were adjusted for clustering at household level; unadjusted ICC=0.12.

In a logistic regression model, affected households in wave II were about six times are likely to experience illness (Table 4). Adjustment for presence of illness in the household

at baseline, baseline household income, and location (i.e. Welkom versus Qwaqwa) reduced the strength of this association.

Table 4: Predictors in wave II of illness among households during the past month: logistic regression model

	Crude odds ratio			Odds ratio adjusted for site, baseline income, and morbidity in wave I		
	OR	**(95% CI)**	**P**	**OR**	**(95% CI)**	**P**
Affected vs. non-affected	6.4	(3.9-10.4)	<0.001	3.4	(2.0-6.0)	<0.001

In a multiple regression model (Table 5), individuals in wave II were twice as likely to have been ill during the previous month in affected than in non-affected households, but risk of illness did not differ between Qwaqwa and Welkom. Illness was more likely at wave II if the individual had been ill during the 6 months preceding wave I, and as their age increased.

Table 5: Predictors of illness among individuals during the past month: logistic regression model

Explanatory variable	**Odds ratio**	**95% CI***	**P***
Affected vs. non-affected	2.2	(1.4-3.3)	0.001
Ill during wave I	12.2	(8.3-18.8)	<0.001
Age (years)	1.010	(1.001-1.019)	0.021

* Adjusted for clustering at household level.

A comparison of members of household who in wave I were and were not ill during the past month (Figures 2 and 3) shows that ill individuals were more likely to be between about 20 and 40 – the age band most at risk of HIV/AIDS. Similar age distributions were seen when those with and without diagnoses of infectious disease were compared.

Figure 2. Age distribution of members of affected households who <u>were ill</u> during the past month in wave I

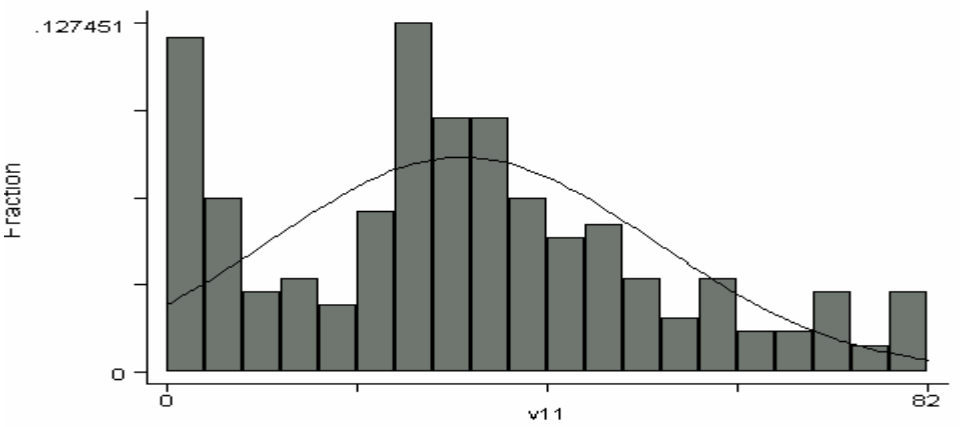


Figure 3. Age distribution of members of affected households who were <u>not ill</u> during the past month in wave I

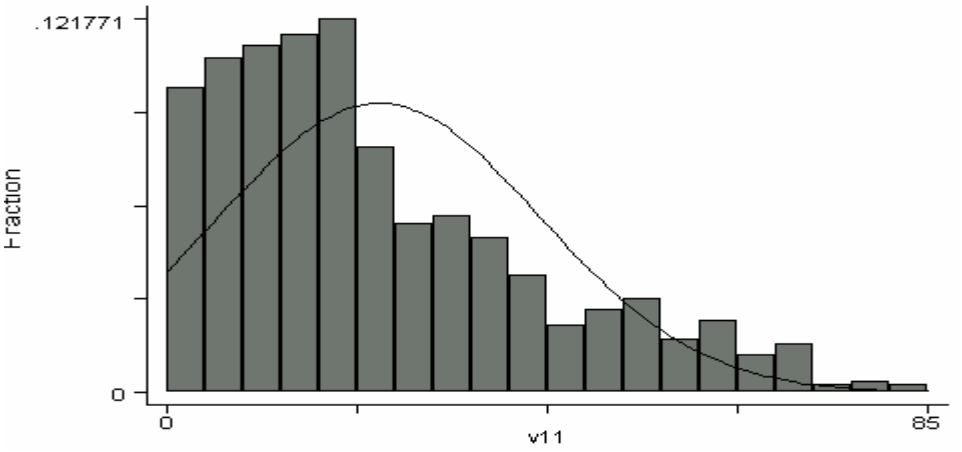


Table 6 shows that the risk of illness in wave I was significantly higher in affected households in all age bands up to 50 years, and the odds ratio was highest in the age bands 5-10 years (OR=13) and 20-30 years (OR=11). The low P value for the age*affected status interaction term shows that age significantly modified the effect of HIV on risk of illness.

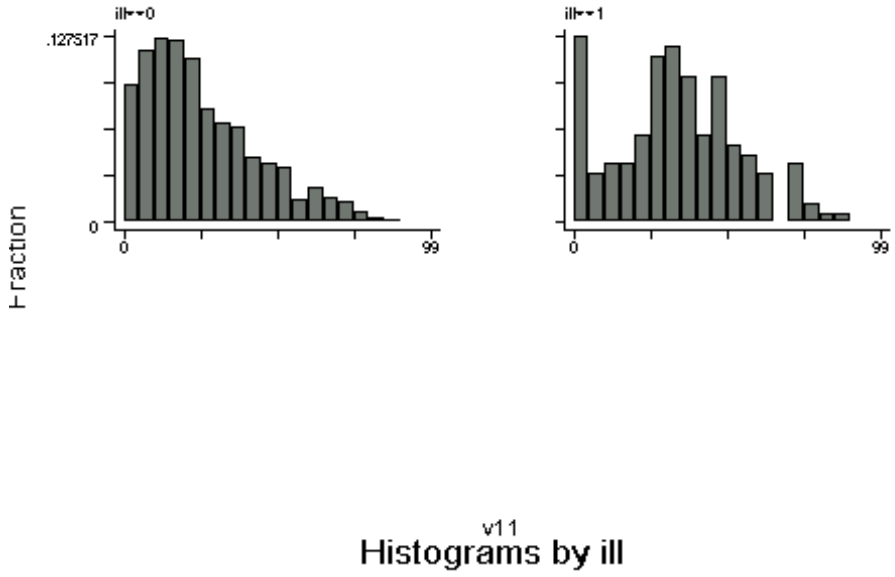
Table 6: Risk of illness in affected vs. non-affected households by age band (wave I)

Age band (years)	Number of persons in band	Odds ratio*	95% confidence interval
0 - <5	185	4.6	(1.7-12.5)
≥ 5 - <10	213	13.1	(1.7-101)
≥ 10- <20	454	4.7	(1.4-16.6)
≥ 20- <30	363	11.4	(4.0-32.4)
≥ 30- <40	268	6.4	(2.9-14.2)
≥ 40- <50	174	2.8	(1.3-6.2)
≥ 50- <60	110	1.9	(0.74-5.0)
≥ 60	138	1.5	(0.71-3.3)

* Log ratio value for inclusion of age*affected status interaction term in logistic regression model: P = 0.006.

A comparison of members of household who in wave II were and were not ill during the past month (Figure 4) shows that ill individuals were more likely to be under five, or between about 20 and 40 – the age bands most at risk of HIV/AIDS.

Figure 4: Age distribution of household members who were ill (code=1) and not ill (code=0) during the past month in wave II



(iii) Number of ill people per household

The number of ill people per household in wave I is shown in Table 7. 13% of households had more than one ill member. Affected households tended to have more ill members (P<0.001), and a higher percentage of ill household members (P<0.001) than did non-affected households.

Table 7: Number of ill persons per household in wave I

Number of ill persons per household	Number of households (n)	%
0	217	53.4
1	138	34.0
2	36	8.9
3	11	2.7
4	3	0.7
5	1	0.3
Total	*406*	*100.0*

The number of ill people per household as in wave II is shown in Table 8. As in wave I, affected households tended to have more ill members (P<0.001) than did non-affected households.

Table 8: Number of ill persons per household in wave II

Number of ill persons	Affected (n)	(%)	Non-affected (n)	(%)
0	504	49	743	84
1	398	39	124	14
2	103	10	12	1
3	11	1	5	1
4	0	0	0	0
5	9	1	0	0
Total	**1025**	**100**	**884**	**100**

Ordinal logistic regression provides expected probabilities of households including a given number of ill members in wave I, in different categories of households (Table 9). This shows that affected households in wave I was between 7 and 10 times as likely to have 2, 3, 4 or 5 ill members.

Table 9: Expected probabilities of households having 0-5 ill members in wave I*

No ill / household	Expected % in non-affected	Expected % in affected	Relative risk
0	24.1	75.9	0.32
1	50.7	20.8	2.44
2	17.2	2.4	7.12
3	5.8	0.6	9.04
4	1.6	0.2	9.69
5	0.5	0.1	9.88
Total	*100.0*	*100.0*	

Table 10 presents the results of a similar analysis providing expected probabilities of households in wave II including a given numbers of ill members, in different categories of households, adjusted for other variables in the model. The results show that affected households in wave II were about four or five times as likely to have two or more ill members, and a third as likely to have no ill members.

Table 10: Expected probabilities of households having 0, 1, 2 or ≥3 ill members in wave II*

No ill / household	Expected % in non-affected	Expected % in affected	Relative risk
0	21.2	60.4	0.35
1	53.9	34.1	1.58
2	20.5	4.7	4.33
<3	2.9	0.5	5.38

*Calculated from ordinal regression model, adjusting for site, household size, and income.

(iv) Nature of illness: Diagnoses

As in wave I, members of affected households were more likely to have had infectious diseases (Table 11). HIV/AIDS, tuberculosis and pneumonia made up two thirds of the illnesses in affected households. This analysis assumed that those who were not reported to be ill did not have these diseases.

Table 11: Diagnostic mix in wave I and II among ill individuals

Diagnosis	Wave I						Wave II					
	Total		Affected		Non-affected		Total		Affected		Non-affected	
	No	%	No	%	No	%	No	%	No	%	No	%
Sample	238	(100)	204	(100)	54	(100)	151	(100)	120	(100)	31	(100)
Flu/cold	47	(20)	31	(15)	16	(30)	3	(2)	2	(2)	1	(3)
HIV/AIDS	36	(15)	35	(17)	1	(2)	39	(26)	39	(33)	0	(0)
TB	45	(19)	43	(21)	2	(4)	41	(27)	35	(29)	6	(19)
Pneumonia	4	(2)	8	(4)	0	(0)	7	(5)	6	(5)	1	(3)
Hypertension	13	(5)	6	(3)	7	(13)	10	(7)	3	(3)	7	(23)
Asthma	7	(3)	6	(3)	1	(2)	9	(6)	6	(5)	3	(10)
Diabetes	7	(3)	4	(2)	3	(6)	6	(4)	3	(3)	7	(23)
Other	79	(33)	71	(35)	24	(43)	36	(24)	26	(22)	6	(19)

(v) Severity of illness: recovery, ability to perform daily tasks, and hospital admission

Ill members of affected households in wave I were about half as likely to have recovered from their illness at the time of interview than those in non-affected households (27% of 202 versus 45% of 53; P=0.014). In a multiple logistic regression model (Table 12), ill members of affected household in wave I were five times as likely not to have recovered at the time of interview. Non-recovery in wave I was less likely with increasing household income, and more likely with increasing age. Those with an early high school education (grades 8-10), and those too young to attend school, were more likely than those with only a primary education not to have recovered, independently of age.

Table 12: Predictors of in wave I not yet having recovered from illness: logistical regression model*

Explanatory variable	Odds ratio	95% confidence interval	P*
Household level			
Affected versus none-affected	5.4	(3.4-8.5)	<0.001
Household income (per R100/month)	0.97	(0.95-0.98)	<0.001
Individual level			
Age (per 10 years)	1.46	(1.33-1.62)	<0.001
Highest education level			
• Too young for school versus grade 1-7	3.8	(2.0-7.2)	<0.001
• Grade 8-10 versus grade 1-7	2.0	(1.3-3.1)	<0.001
• Grade 11-12 versus grade 1-7	1.4	(0.8-2.3)	0.26
• Diploma/degree versus grade 1-7	1.5	(0.5-4.8)	0.48
• No education versus grade 1-7	1.6	(0.2-15.4)	0.67

* Analyzed at individual level, adjusted for clustering at household level (ICC=0.02).

In wave II, ill members of affected households were about slightly less likely to have recovered from their illness at the time of interview than those in non-affected households, but this difference was not significant (8% vs. 12%, P=0.50)(Table 13). Among all individuals, the risk of in wave II having an illness during the past month from which they had not recovered was about three times higher in a multiple logistic regression model.

In wave I, ill members of affected households were also less likely to be able to perform daily tasks while ill (50% of 203 versus 81% of 53; P<0.001). The commonest reasons given for not being able to perform daily tasks was being too ill or in too much pain (68%), or being too weak (25%), among the 111 for whom this was explained. Similarly, members of affected households in wave II were more likely to be unable to perform daily tasks because of illness (3.5% vs. 0.7%, P<0.001).

Table 13: Predictors in wave II of not yet having recovered from illness: logistical regression model*

Explanatory variable	Odds ratio	95% confidence interval	P*
Household level:			
Affected versus non-affected	3.5	(2.2-5.5)	<0.001
Individual level:			
Age (per year)	1.02	(1.01-1.03)	<0.001

- Analyzed at individual level, adjusted for clustering at household level (ICC=0.04).

In wave I, a quarter of ill individuals were admitted to hospital. The admission rate was three times higher in affected (27%, or 54/203) than in non-affected (9%, or 5/35) households (P=0.008). Among individuals admitted to hospital in wave I, the duration of admission was longer among those from affected households (median 7, range 1-30 days) than from non-affected households (median 3, range 2-7 days) (P=0.03).

Table 14: Predictors of hospital admission in wave I: logistic regression model*

Explanatory variable	Odds ratio	95% confidence interval	P
Household level			
Affected versus non-affected	9.5	(3.8-23.6)	<0.001
Qwaqwa versus Welkom	1.8	(1.1-3.1)	0.025
Percentage of household members <15 years old (per 10 %)	0.81	(1.00-1.02)	0.031
Individual level			
Age (per 10 years)	0.74	(0.54-1.00)	0.041

* Analyzed at the level of each household member, adjusting for clustering of outcomes at household level (ICC=0.12).

A multiple logistic regression model identified the following factors as significant and independent predictors of admission to hospital in wave I (Table 14). Hospital admission was about 10 times as likely among individuals in affected as in non-affected households, almost twice as likely in Qwaqwa as in Welkom. Age had two independent influences on

admissions. At a household level, admission was less likely if a household had a higher percentage of members younger than 15 years. At an individual level, admission was less likely with increasing age. There was no interaction between affected status and urban/rural location.

The results for wave II present a similar picture. A quarter of ill individuals in wave II were admitted to hospital. The admission rate among ill individuals was five times higher in affected (29% of 123) than in non-affected (6% of 33) households (P=0.006), indicating more severe disease. In a multiple logistic regression, hospital admission in wave II was about 16 times more likely among individuals in affected than in non-affected households (Table 15).

Table 15: Predictors of hospital admission in wave II: logistic regression model*

Explanatory variable	Odds ratio	95% confidence interval	P
Affected vs. non-affected	16.0	(3.8-66.6)	<0.001

* Analyzed at the level of each household member, adjusting for clustering of outcomes at household level (ICC=0.12).

(vi) Source of health care

The commonest source of care was government clinics, followed by government hospitals and private doctors (Table 16). Ill individuals in affected households were more likely than those in non-affected household to use government hospitals and were marginally less likely to use government clinics or private doctors, suggesting more severe disease among affected households. Only 9% (wave I) and 3% (wave II) of ill persons did not obtain treatment. This did not differ significantly between ill individuals in affected and non-affected households (wave I: 8% versus 15%; P=0.12; wave II: 6% versus 2%; P=0.28).

Table 16: Source of health care in wave I and II

Place of treatment	Wave I				Wave II			
	Affected		Non-affected		Affected		Non-affected	
	No	%	No	%	No	%	No	%
Total number ill	204	100	54	100	121	100	31	100
Government clinic	94	46	27	50	51	42	19	61
Government hospital	43	21	3	6	50	41	5	16
Private doctor	41	20	11	20	12	10	5	16
Private hospital	2	1	3	6	3	2	1	3
Mine hospital	4	2	0	0	2	2	1	3
Pharmacist	2	1	1	2	2	2	0	0
Traditional healer	1	1	0	0	2	2	0	0

Table 17 shows the distribution of the cost of health care among the 187 ill members of affected households who did use health care in wave I. The mean total for fees, treatments and transport was estimated to be R98, comprised of consultation fees (mean R39), followed by medicines (R31), transport (R18) and hospital fees (R9). These estimates were highly sensitive to inclusion of one individual whose consultation fees were R5000-R10000 and who was excluded from the latter estimates. Inclusion of this individual in calculations, and assuming their fees were R7500, increased the average consultation fee by R40 to R79, and total costs to R138.

Table 17: Households' expenditure on ill individuals in wave I

Cost	Consultation fees		Hospital fees		Medicines		Other treatments		Transport	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Nothing/free #	104	55.6	150	80.2	109	58.3	184	98.4	88	47.1
Less than R50	30	16.0	25	13.4	37	19.8	1	0.5	84	44.9
R51-R100	28	15.0	9	4.8	24	12.8	1	0.5	14	7.5
R101-R200	16	8.6	2	1.1	8	4.3	1	0.5	1	0.5
R201-R300	3	1.6	0	0	3	1.6	0	0	0	0
R301-R400	2	1.1	0	0	3	1.6	0	0	0	0
R401-500	0	0	0	0	0	0	0	0	0	0
R501-600	1	0.5	0	0	0	0	0	0	0	0
R5001-R10000	1	0.5	0	0	0	0	0	0	0	0
Medical aid	2	1.1	1	0.5	3	1.6	0	0	0	0
Total	*187*	*100*	*187*	*100*	*187*	*100*	*187*	*100*	*187*	*100*
Average*		***R39***		***R9***		***R31***		***R1***		***R18***
Average**		***R79***		***R9***		***R31***		***R1***		***R18***

Assumed where no cost reported.

* Average cost estimates assume that the cost for each patient was the midpoint of the respective cost category. Average were calculated excluding one individual whose consultation fees were R5000-R10000.

** Including one individual whose consultation fees were R5000-R10000.

Table 18 shows the distribution of health care costs among the 157 individuals that were ill in wave II. The mean total for consultation fees, treatment costs and transport was estimated to be R81.45, comprised of medicines (R20), consultation fees (mean R14), transport (R11), and hospital fees (R6).

Table 18: Households' expenditure on ill individuals in wave II

Cost	Consultation fees		Transport		Medicines		Hospital fees	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Total no. ill	157	100	157	100	157	100	157	100
Nothing/free #	109	69	93	59	107	68	134	85
Less than R50	18	11	55	35	20	13	11	7
R51-R100	18	11	8	5	9	6	7	4
R101-R200	4	3	0	0	8	5	2	1
R201-R300	0	0	0	0	2	1	0	0
R301-R400	1	1	0	0	3	2	1	1
R401-500	0	0	0	0	1	1	0	0
R501-750	1	1	1	1	1	1	0	0
Medical aid	6	4	0	0	6	4	2	1
Average (Rand)*		***13.69***		***10.55***		***20.28***		***5.88***

Assumed if nothing reported. * Calculated using midpoint of each cost category.

Households used the coping strategies shown in Table 19 to deal with these medical expenses. A large proportion of households did not have to pay insofar as care was provided free of charge, i.e. 39.5% in wave I compared to 62% in wave II. A relatively large proportion used their own income to pay for these medical expenses (37.4% in wave I compared to 24.7% in wave II). Between 6% and 7% paid via medical aid, while a small proportion required help from friends or relatives, borrowed money, or used existing savings or proceeds from an inheritance.

Table 19: Households' strategies for coping with medical expenses in wave I and II

Strategy	Wave I		Wave II	
	No.*	%	No.*	%
It is free (i.e. not applicable)	75	39.5	98	62.0
Used own income	71	37.4	39	24.7
Help from relatives	17	8.9	5	3.2
Medical aid	13	6.8	12	7.6
Used existing savings	7	3.7	0	0
Borrowed money	3	1.6	1	0.6
Used inheritance	2	1.1	0	0
Help from friends	1	0.5	1	0.6
Not yet paid	1	0.5	2	1.3
Total	**190**	**100**	**158**	**100**

* Frequency with which each strategy was reported.

(vii) Labor and financial burden of illness on households

In wave I, 72% (182/253) of ill household members were cared for at home, the rest being hospitalized or ambulatory. Being cared for at home was slightly more likely among those from affected households (75%) than from non-affected households (62%) households. The duration of being cared for at home appeared higher in affected households (median 20) than non-affected households (median 14), but this difference was not significant. Among the 177 ill persons for whom the logistical burden of home care was reported, caring for the ill person took a median of 4 hours per day. This took longer in affected households (median 4) than in non-affected households (median 3)(P=0.06). Almost 60% of ill household members were accompanied on their visits to health care facilities. Those from affected households were significantly more likely (68%) to be accompanied on these visits than those from non-affected households (37%).

The wave II results presents a similar picture, with 63% (99/156) of ill household members being cared for at home, the rest being hospitalized or ambulatory. Being cared

for at home was slightly more likely among those from affected households (67%) than from non-affected households (51%) households. Among the 76 ill persons for whom the logistical burden of home care was reported, caring for the ill person took a median of 4 hours per day. This took longer in affected households (median 5) than in non-affected households (median 3.5)(P=0.06). Some 53% of ill household members that attended health services were accompanied on their visits to these facilities. Those from affected households were significantly more likely (57%) to be accompanied compared to those from non-affected households (39%)(P=0.06).

In the first round of interviews (wave I), 8 ill household members lost income while ill, all of these coming from affected households. These 8 people lost a median of 13 (range 4-30) days of work due to their illness, resulting in a median loss of income of R220 (range 100-1600, IQR 155-1125) over the past month. Caring for an ill person led their caregivers to lose income in 5% (9/180) of cases; this percentage did not differ between affected and non-affected individuals (P=1.0). Among these 9 caregivers, the median number of working days lost over the past month was 7 (range 1-30). Only 5% (7/149) of those accompanying ill household members to health services lost income as a result, and this did not differ between affected and non-affected households (P=1.0). In wave II, 8 ill household members lost income due to illness, all of these coming from affected households. These 8 people lost a median of 14 (range 3-30) days of work due to their illness, resulting in a median loss of income of R250 (range 90-900) over the previous 30 days. Caring for an ill person did not in wave II lead to any caregivers missing work or losing income.

MORTALITY AMONG AFFECTED HOUSEHOLDS DURING THE PREVIOUS SIX MONTHS

A total of 44 deaths were reported in wave I: 42 in affected and 2 in non-affected households (relative risk 21; 95% CI 6-180). Of the 2 deaths in non-affected households, one was a stillbirth and the other was due to dehydration in an infant. Among affected households, 26 deaths occurred among 101 households in Qwaqwa, while 16 deaths

occurred among 101 households in Welkom (relative risk 1.3; 95% CI 0.65-2.7). During the second round of interviews (wave II), 34 deaths were reported: 28 in affected and 6 in non-affected households. In four affected households and in two non-affected households two people died per household. Among the 28 people who died in affected households since the wave I survey, 20 had been reported as ill at baseline, having HIV/AIDS (n=9), tuberculosis (n=6), pneumonia (n=1), cold/flu (n=1) and stroke (n=1). Thus most deaths in affected households were preceded by HIV-related infections.

In a multiple logistic regression model including all households interviewed in wave I, a death was 25 times more likely in affected households, twice as likely in Qwaqwa as in Welkom, and about 1.6% more likely with every 1% increase in the percentage of the household that was female (Table 20). The latter figure is equivalent to a 17% increase in risk for a difference of 10% in the percentage that was female (i.e. $OR=1.016^{10}$). Income, employment status, medical aid cover and age distribution in wave I had no independent influence on risk of death. There was also no interaction between affected status and urban/rural location.

Table 20: Predictors of death in a household in wave I: logistic regression model*

Explanatory variable	**Odds ratio**	**95% confidence interval**	**P**
Affected versus non-affected	25.1	(5.9-106)	<0.001
Qwaqwa versus Welkom	1.99	(0.97-4.01)	0.062
Females as percentage of household	1.016	(1.000-1.032)	0.044

* Adjusted for household age distribution and number of household members.

In a multiple logistic regression model including all households interviewed in wave II, a death was eight times (odds ratio 7.8; 95% CI 2.3-27.2) more likely in affected households (Table 21), adjusting for site, baseline income and mortality in wave I.

Table 21: Predictors of death in a household in wave II: logistic regression model

Explanatory variable	Crude OR			OR adjusted for site, baseline income, and mortality in wave1		
	Odds ratio	95% CI	P	Odds ratio	95% CI	P
Affected vs. non-affected	8.9	(2.6-30.0)	<0.001	7.8	(2.3-27.2)	<0.001

In an individual level analysis based on the data from wave II, individuals in affected households were 4.7 times as likely to have died during the past 6 months (Table 22), with risk of death also increasing with increasing age.

Table 22: Predictors of death among individuals in wave II: logistic regression model

Explanatory variable	OR	95% CI*	P*
Affected vs. non-affected	4.7	(1.5-14.0)	0.006
Age (per year)	1.033	(1.018-1.047)	<0.001

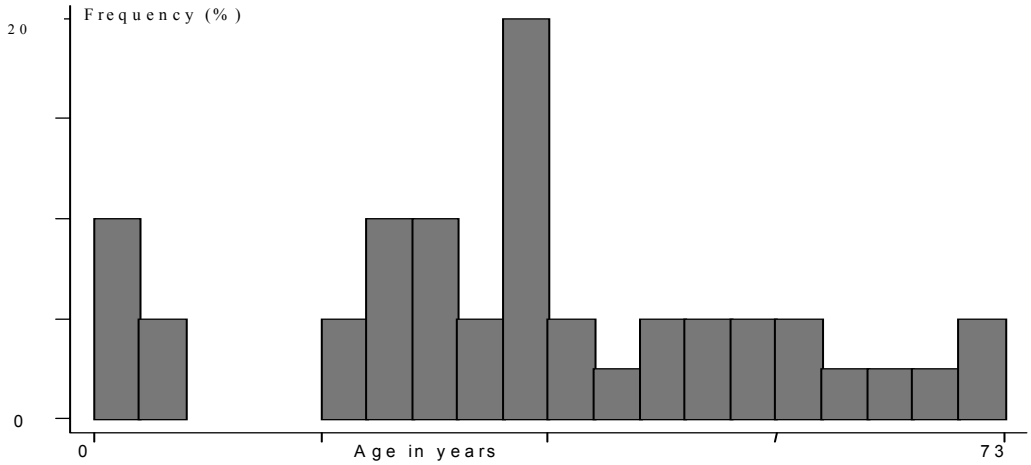
* Adjusted for clustering at household level.

The following mortality results will be confined to affected households only.

(i) Demographic characteristics of deceased household members

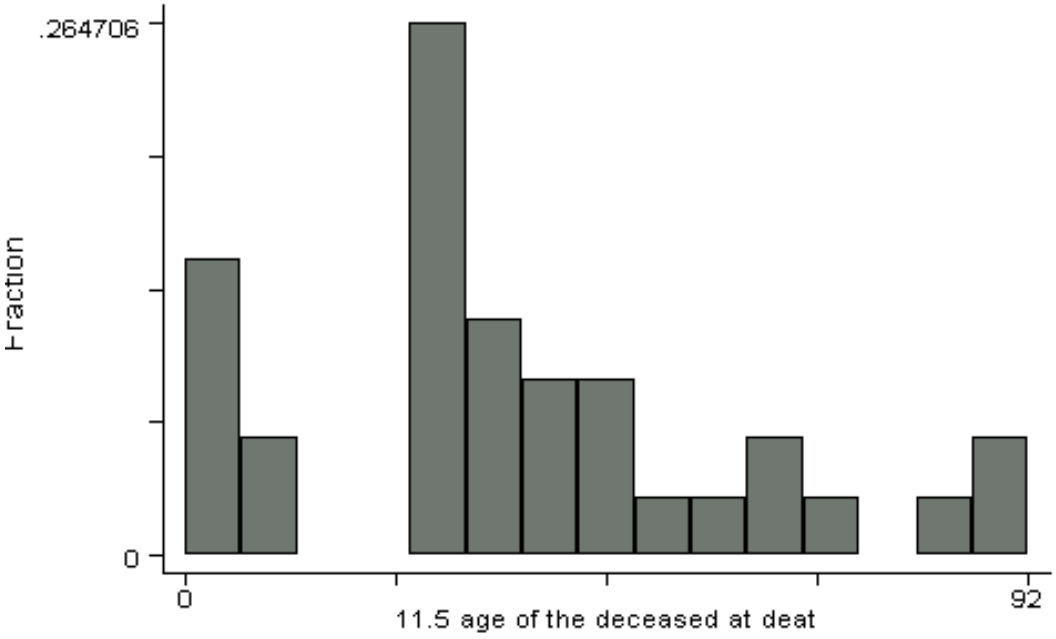
Among the 42 members who died in affected households in wave I, approximately half (49%) were male and half (51%) were female. In wave II, 68% of the 28 members of affected households who died were female compared to 32% who were male.

Figure 5: Age distribution of wave I deaths in affected households (n=42)



In wave I, the mean age of death was 35 (range 0-73, inter-quartile range 24-49) years. The following graph of the age distribution of deaths shows a peak around 35 years, with a smaller peak among young children (Figure 5). The results for wave II look similar, with the mean age of death being 30 (range 0-92, inter-quartile range 25-47) years. As was the case in wave I, the graph of the age distribution of these deaths shows a peak between 25 and 50 years of age, with a smaller peak among young children (Figure 6).

Figure 6: Age distribution of wave II deaths in affected households (n=28)



(ii) Cause of death

The cause of death in wave I was reported to be some kind of infectious disease in 33 (79% of 42) cases: tuberculosis in 12 (29%) cases, HIV/AIDS in 12 (29%), pneumonia in 7 (14%) and meningitis in 2 (5%)(Table 23). Thus about four in five deaths in wave I was due to infections that could be HIV-related. Infections in wave I accounted for 29 of 33 deaths up to 50 years of age, compared to 5 of 9 deaths over 50 (relative risk 1.6; 95% CI 0.6, 5.2). The remaining 9 deaths in wave I was ascribed to cancer, stroke, diabetes, trauma or unknown causes. The majority (89% or 35) of the deceased were ill for at least a month before their death. Infectious disease feature equally prominent in the deaths recorded in the second round of interviews (wave II). In this case, the cause of death was reported to be an infectious disease in 21 (75% of 28) cases: HIV/AIDS in 12 (43%), tuberculosis in 4 (14%) cases, pneumonia in 3 (11%) and meningitis in 2 (7%). Thus about three in four deaths in wave II were due to infections that could be HIV-related. The remaining 7 deaths in wave II were due to stroke, diabetes or unknown causes. Again, the majority (81% or 22) of the deceased were ill for at least a month before their death.

Table 23: Causes of deaths in affected households wave I and II

Cause of death	**Wave I**		**Wave II**	
	No.	**%**	**No.**	**%**
HIV/AIDS	12	29	12	43
Tuberculosis	12	29	4	14
Pneumonia	7	14	3	11
Meningitis	2	5	2	7
Other	9	23	7	25
Total	*42*	*100*	*28*	*100*

(iii) Health care utilization before death

In wave I, 39/41 (95%) of persons sought treatment before death. The commonest source of care was government hospitals, followed by traditional healers, government clinics, and private providers (Table 24). In wave II, 26/28 (93%) sought treatment before death. The commonest sources of care again were government hospitals and clinics, with a very small number of persons in wave II consulting traditional healers and private doctors prior to their death.

Table 24: Source of care for fatal illness in affected households in wave I and II

Last source of care	**Wave I**		**Wave II**	
	No.*	**%**	**No.***	**%**
Government hospital	21	55	17	65
Government clinic	6	16	7	27
Traditional healer	7	18	1	4
Private doctor	3	8	1	4
Private hospital	1	3	0	0
Total	*38*	*100*	*26*	*100*

* Source not stated for respectively 4 and 2 individuals that died in wave I and in wave II.

(iv) Labor and financial burden of fatal illness on households

Table 25 shows the frequency distribution of health care costs among households for the 42 persons that died in wave I. The mean household cost of health care for the fatal illness (assuming the cost for each person was the midpoint of the respective category) was R167: R56 for consultation fees, R19 for hospital fees, R55 for medicines and R 37 for transport. Only one patient had medical aid cover.

Table 25: Cost of health care for fatal illness in wave I

Cost	Consultation fees		Hospital fees		Medicines		Transport	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Nothing/free #	17	36	25	37	19	41	10	14
Less than R50	10	26	11	41	11	28	25	68
R51-R100	8	21	5	19	3	8	3	8
R101-R200	2	5	1	4	4	10	3	8
R201-R300	2	5	0	0	2	5	1	3
R301-R400	2	5	0	0	2	5	0	0
Medical aid	1	3	0	0	1	3	0	0
Total	*42*	*100*	*42*	*100*	*42*	*100*	*42*	*100*
Average*		***R56***		***R19***		***R55***		***R37***

Assumed if cost not reported.

* Total cost estimates assume that the cost for each patient was the midpoint of the respective cost category.

Table 26 shows the frequency distribution of health care costs among households that experienced a death in wave II. The mean household cost of health care for the fatal illness (assuming the cost for each person was the midpoint of the respective category) was R 135: R24 for consultation fees, R19 for hospital fees, R55 for medicines and R 37 for transport. Not one person had medical aid cover.

Deaths in wave I also resulted in a loss of income for households. A total of 6 (14% of 42) of the deceased were reportedly employed of which 10 reportedly had an income: 4 under R1000 per month, 5 from R1000 to R2000 per month and 1 over R2000 per month. In wave II, only two of the deceased were employed before their death, earning R800 and R2600 each per month.

Table 26: Cost of health care for fatal illness in wave II

Cost	Consultation fees		Hospital fees		Medicines		Transport	
	No.	%	No.	%	No.	%	No.	%
Nothing/free #	21	75	21	75	22	79	10	36
Less than R50	4	14	5	18	3	11	14	50
R51-R100	1	4	2	7	3	11	3	11
R101-R200	1	4	0	0	0	0	1	4
R201-R300	0	0	0	0	0	0	0	0
R301-R400	1	4	0	0	0	0	0	0
Total	28	100	28	100	28	100	28	100
Average*		***R24***		***R19***		***R55***		***R37***

Assumed if cost not reported. * Total cost estimates assume that the cost for each patient was the midpoint of the respective cost category.

In wave I, funeral expenses cost a median of R4000-5000 (inter-quartile range R2000-3000; R6000-7000). The means of finance most often used to pay for funerals were funeral insurance, relatives and/or friends, and own income. In wave II, funeral expenses were slightly lower, with a median cost of R3000-4000 (inter-quartile range R2000-3000; R5000-6000). In this case, the most important sources of finance for funerals were relatives or friends and own income, with only a small number of households using savings. Interesting, though, is that in wave I a significantly larger percentage of funerals in Qwaqwa was paid for with funeral insurance and by friends and relatives compared to Welkom where own income, borrowing and savings was used more often. This makes sense insofar as poverty and unemployment are worse in rural than in urban areas, as will be shown elsewhere.

Table 27: Sources of finance for paying for funeral costs (multiple response)

Source	Wave I		Wave II	
	No	%	No	%
Funeral insurance policy	16	28.1	0	0
Relatives or friends	14	24.6	35	57.4
Income	12	21.0	24	39.3
Borrowing	5	8.8	0	0
Other	5	8.8	0	0
Savings	4	7.0	2	3.3
Sales of assets	1	1.8	0	0
Total	*57*	*100.0*	*61*	*100*

The logistical burden of caring for the deceased during their fatal illness was as follows. In wave I, household members spent an average of 7.5 (range 2-24) hours per days providing care, compared to a median of 5 (range 2-24) hours per days in wave II. Loss of income due to caring in wave I was however reported for only 2 (5% of 38) households, whereas no caregivers in wave II were employed, and thus did not lose income as a result of caring. Care appeared to be provided mainly by unemployed household members and caregivers were relatives in almost all cases.

SECTION B: ECONOMIC IMPACT

The subsequent discussion of the socioeconomic impact of HIV/AIDS on households deal with a number of main aspects of economic impact, namely

- labor supply, which looks at differences in household size and composition
- migration of households and household members
- income and composition of income
- expenditure and expenditure patterns
- savings, debt and repayment of debt
- financial responses to changes in income and expenditure, including new borrowing, the utilization of savings and the sale of assets
- direct, indirect and total costs of morbidity and mortality to households
- HIV/AIDS and children, which focuses on school enrolment and orphans
- poverty and HIV/AIDS

LABOR SUPPLY: HOUSEHOLD SIZE AND STRUCTURE

Affected households on average are slightly larger than non-affected household in terms of household size (Table 28). This suggests that affected households may in fact have a larger available supply of labor than non-affected households. However, the dependency ratio in affected household are higher than that in non-affected households, implying that households affected by HIV/AIDS in fact have a smaller supply of labor than non-affected households, with a larger proportion of the household consisting of children and elderly persons.

Table 28: Supply of household labor and unemployment in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
A. Household size and dependency ratio														
Average household size	5.70	5.53	4.64	4.64	4.59	4.37	4.08	4.10	4.75	4.66	5.14	4.95	4.36	4.37
Dependency ratio	36.54	37.41	32.48	33.78	34.80	34.56	34.33	36.04	34.54	35.45	35.67	35.98	24.70	24.43
Sample (n)		*96*		*95*		*97*		*99*		*387*		*193*		*194*
B. Household composition (%)														
Nuclear family	73.3	71.6	82.3	78.1	71.9	73.5	80.4	78.0	77.0	75.3	72.6	72.5	81.3	78.0
Extended family	24.8	26.7	16.7	20.8	27.6	26.5	19.0	22.1	22.0	24.0	26.2	26.6	17.9	21.5
Non-related persons	2.3	2.1	1.0	1.2	0.0	0.0	0.3	0.0	0.9	0.8	1.1	1.1	0.6	0.6
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
C. Average unemployment rate (%)														
Narrow definition	52.0	52.5	44.7	46.0	66.4	64.3	53.3	50.7	53.2	53.1	58.7	58.4	48.4	48.2
Broad definition	54.5	54.8	46.2	47.9	69.1	66.2	55.3	52.8	54.2	55.4	58.8	60.9	50.2	50.2

Also interesting to note is the differences in the household composition of affected and non-affected households. Affected households when compared to non-affected households include a larger proportion of members belonging to the extended family, while a smaller proportion of members belong to the nuclear family (Table 28). Only a very small proportion of members of affected and non-affected households are not related to the head of the household. This suggests that the epidemic may be causing households to increasingly give shelter to members of their extended family, implying that the extended family still plays a relatively important role in coping with the epidemic.

A larger proportion of affected households are affected by morbidity and mortality compared to non-affected households (Table 29). Respectively 73.6% (wave I) and 53.4% (wave II) of affected households had in the month prior to the interview been affected by illness, while 20% (wave I) and 12.4% (wave II) had lost one household member in the six months before the interview. Respectively 45.6% and 3.1% of affected households experienced illness or death in both wave I and in wave II. In non-affected households, only respectively 20.1% (wave I) and 14.9% (wave II) of households had been affected by illness, while 1.0% (wave I) and 2.1% (wave II) had experienced a death in both wave I and in wave II. In the case of non-affected households, only 4.6% of households experienced illness both waves of the survey. Not one household in the control group experienced a death in both periods.

Evident from Figures 7, 8 and 9 is that illness and death in affected households occurred mainly among members belonging to the economically active population (age 15-49), as well as among younger children, which also implies that the current and future supply of labor in affected households is affected adversely by the epidemic.

Table 29: Changes between waves I and II in incidence of morbidity and mortality

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Total sample	96	100.0	95	100.0	97	100.0	99	100.0	387	100.0	193	100.0	194	100.0
A. Households where at least one household member was ill during the past 30 days														
Wave I	63	65.6	18	18.9	79	81.4	21	21.2	181	46.8	142	73.6	39	20.1
Wave II	42	43.8	19	20.0	61	62.9	10	10.1	132	34.1	103	53.4	29	14.9
Waves I and II	34	35.4	4	4.2	54	55.7	5	5.1	97	25.1	88	45.6	9	4.6
P (Fischer's Exact test)		*0.009*		*1.000*		*0.030*		*0.033*				*<0.001*		*1.000*
B. Households where at least one household member had died during the past 6 months														
Wave I	15	15.6	1	1.1	24	24.7	1	1.0	41	10.6	39	20.2	2	1.0
Wave II	12	12.5	2	2.1	12	12.4	2	2.0	28	7.2	24	12.4	4	2.1
Waves I and II	2	2.1	0	0.0	4	4.1	0	0.0	6	0.9	6	3.1	0	0.0
P (Fischer's Exact test)		*1.000*		*1.000*		*1.000*		*1.000*				*1.000*		*1.000*

Note: The percentages under 'Number of deaths' are not expressed relative to the number of individuals because these persons are not counted as current members of the respective households. The percentages reflect the % of total deaths in each of the clusters of households.

Figure 7: Age of ill individuals in affected and non-affected households in wave I

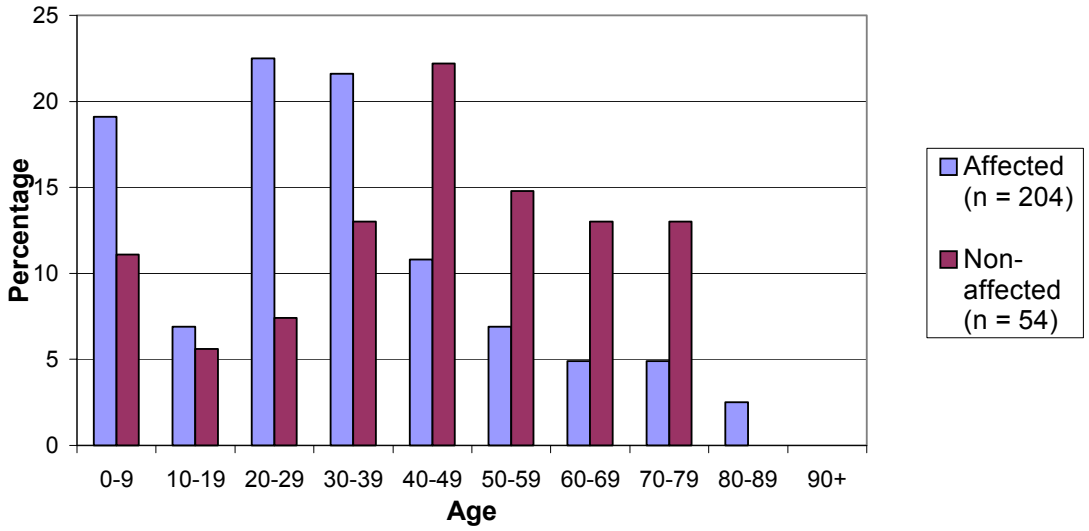


Figure 8: Age of ill individuals in affected and non-affected households in wave II

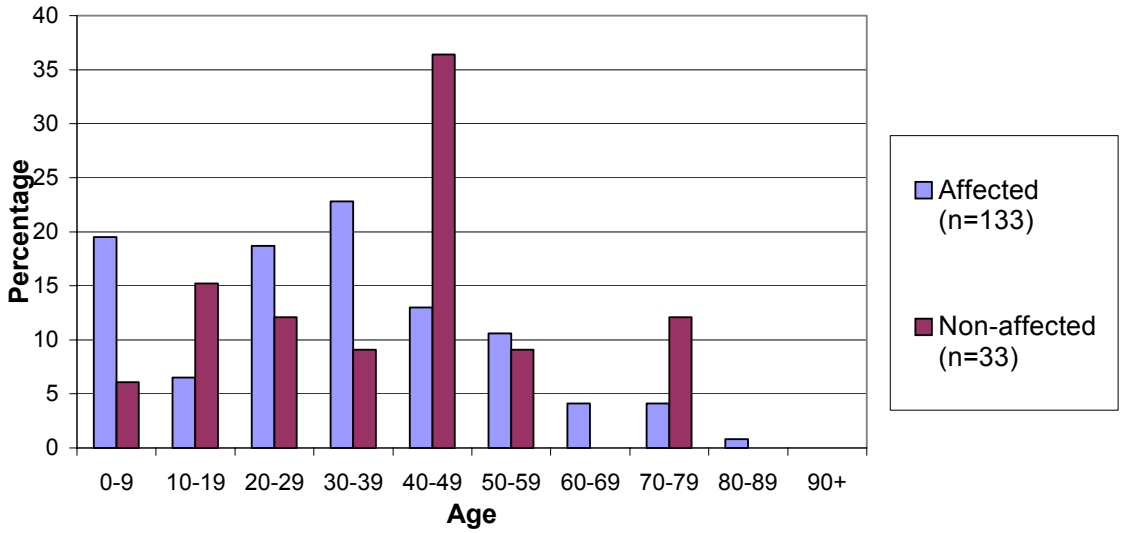
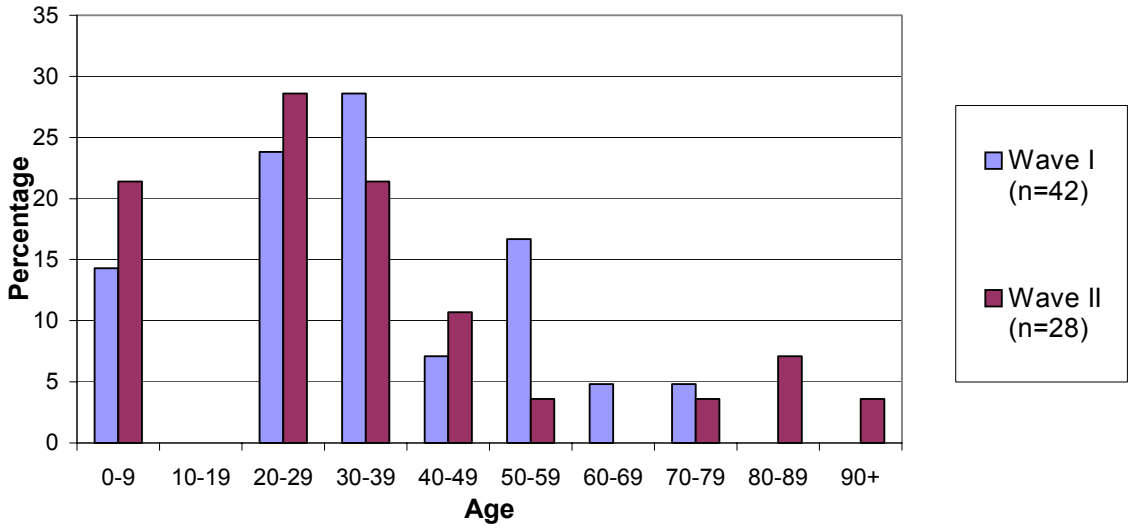


Figure 9: Age at death for deaths occurring in affected households



As a result, unemployment rates (both in terms of the narrow and broad sense) are generally higher in affected than in non-affected households (Table 28). This is the case in both waves of the survey, thus substantiating the claim that there are tangible differences between the unemployment rates in affected and non-affected households. Hence, affected households, although larger than non-affected households, actually face more severe resource constraints insofar as household resources have to be shared between larger numbers of mostly economically inactive persons than is the case in non-affected households.

Table 30: Changes between waves I and II in employment status of persons aged fifteen years and older

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Total sample	290	100.0	282	100.0	262	100.0	245	100.0	1079	100.0	552	100.0	527	100.0
Employed in wave I	71	24.5	99	35.1	43	16.4	62	25.3	275	25.5	114	20.6	161	30.6
Newly employed wave II	18	6.2	14	5.0	17	6.5	15	6.1	64	5.9	35	6.3	29	5.5
Newly unemployed wave II	23	7.9	25	8.9	10	3.8	11	4.5	69	6.4	33	6.0	36	4.6
Employed wave II	66	22.8	88	31.2	50	19.1	66	26.9	270	25.0	116	21.0	154	29.2
P (Fischer's Exact test)		*<0.001*		*<0.001*		*<0.001*		*<0.001*		*<0.001*		*<0.001*		*<0.001*

Table 31: Type of employment in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Full-time	67 (50)	68 (49)	77 (78)	72 (67)	69 (31)	73 (37)	79 (49)	79 (52)	74 (208)	73 (205)	68 (81)	70 (86)	77 (127)	75 (119)
Part-time	11 (8)	14 (10)	15 (15)	16 (15)	18 (8)	12 (6)	16 (10)	11 (7)	15 (41)	14 (38)	13 (16)	13 (16)	15 (25)	14 (22)
Casual	22 (16)	18 (13)	9 (9)	12 (11)	13 (6)	16 (8)	5 (3)	11 (7)	12 (34)	14 (39)	19 (22)	17 (21)	7 (12)	11 (18)
Total	100 (74)	100 (72)	100 (102)	100 (93)	100 (45)	100 (51)	100 (62)	100 (66)	100 (283)	100 (282)	100 (119)	100 (123)	100 (164)	100 (159)

The panel design of the study also allows one to focus on the changes in the employment status of persons that were part of the study population in both waves of the survey. These results are reported in Table 30. Note that these percentages are not unemployment rates as such, but simply reflect the percentage of persons aged fifteen or older that indicated that they are employed. During wave I 20.6% and 30.6% of persons aged fifteen or older that respectively were part of affected and non-affected households were employed at the time. By wave II, these percentages respectively had changed to 21.0% and 29.2%. The net changes in employment resulted in two persons belonging to affected households gaining employment, while seven persons belonging to non-affected households became unemployed.

It appears as if slightly more members of affected households had moved between being employed and unemployed compared to members of non-affected households (Table 30). In the case of affected households, 6.3% of those that were unemployed in wave I had gained employment, whereas 6% of those that were employed in wave I was not employed by the time the second interviews were conducted. In the case of non-affected households, 5.5% of unemployed persons had gained employment by wave II, while 4.6% of employed persons were not employed at the time of the follow-up interview. This may suggest that affected households are relatively more vulnerable than non-affected households insofar as more pronounced fluctuations in employment may put more severe constraints on household finances, particularly where households have to also cope with illness and/or death. This observation is supported by the observation that relatively more persons in affected households that are indeed employed are employed in casual jobs rather than in full-time jobs compared to employed members of non-affected households (Table 31).

MIGRATION OF HOUSEHOLDS AND HOUSEHOLD MEMBERS

The longitudinal design of the study allows one to explore two aspects of migration, the one household migration and the other the migration of individual household members.

Table 32: Changes between waves I and II in household migration

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Total sample	96	100.0	95	100.0	98	100.0	98	100.0	387	100.0	194	100.0	193	100.0
Number of households now living at a different address	2	2.1	0	0.0	2	2.1	3	3.0	7	1.8	4	2.1	3	1.5
A. Main reason for leaving previous place of residence														
Marriage	0	0.0	0	0.0	0	0.0	2	66.7	2	33.4	0	0.0	2	66.7
Moved to new house	0	0.0	0	0.0	1	100.0	0	0.0	1	16.7	1	33.3	0	0.0
Evicted	0	0.0	0	0.0	0	0.0	1	33.3	1	16.7	0	0.0	1	33.3
Owner of house died	1	50.0	0	0.0	0	0.0	0	0.0	1	16.7	1	33.3	0	0.0
Mother died	1	50.0	0	0.0	0	0.0	0	0.0	1	16.7	1	33.3	0	0.0
Total	*2*	*100.0*	*0*	*100.0*	*1*	*100.0*	*3*	*100.0*	*6*	*100.0*	*3*	*100.0*	*3*	*100.0*

Note: One respondent indicated that they did not know exactly why the household left their previous place of residence.

The extent of household migration is relatively limited. Only 1.8% or 7 of the 387 households interviewed in wave I was living at a different address by wave II (Table 32). One would however expect that the frequency of household migration could increase in subsequent waves of the study. Interesting here is the distinct differences in the reasons why these households had left their previous place of residence. Note that the reason for leaving was only known in 6 of the 7 cases. In the case of affected households, the reasons were primarily related to the death of a household member (66.7%), whereas in the case of non-affected households the reasons were mainly more conventional, i.e. marriage (66.7%). One household each in the affected and non-affected group respectively left their previous place of residence because of moving to a new house and being evicted from their previous residence. Hence, the results indicate the extent to which mortality in particular seems to induce household migration. However, it needs to be kept in mind that the reasons why it was not possible to interview 14 or 73.7% of the total of 19 households not interviewed in wave II was related to migration, i.e. that the current whereabouts of the household were not known or that the households had moved to towns outside the study areas. As such, the extent of household migration is actually somewhat underreported and rather represents intra-community migration only, i.e. excluding migrations outside of the immediate area. Unfortunately, it is not possible in this case to determine the details regarding the why and how of the migration of households not interviewed in the second round of interviews, given that the purpose of the study was not to track and follow households moving outside the two sites.

Table 33: Out-migration of household members between waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Total sample wave I	571	100.0	455	100.0	454	100.0	429	100.0	1909	100.0	1025	100.0	884	100.0
Number of out-migrating household members	38	6.7	15	3.3	24	5.3	19	4.4	96	5.0	62	6.0	34	3.8
A. Age of out-migrating household members for whom age is known														
Average age (sample)	27.7 (30)		29.7 (9)		29.2 (18)		27.6 (16)		28.3 (73)		28.3 (48)		28.3 (25)	
Age 0-9 years	2	6.7	0	0.0	4	22.2	3	18.8	9	12.3	6	12.5	3	12.0
Age 10-19 years	8	26.7	1	11.1	2	11.1	2	12.5	13	17.8	10	20.8	3	12.0
Age 20-29 years	9	30.0	5	55.6	7	38.9	8	50.0	29	39.7	16	33.3	13	52.0
Age 30-39 years	6	20.0	1	11.1	0	0.0	0	0.0	7	9.6	6	12.5	1	4.0
Age 40-49 years	3	10.0	2	22.2	1	5.6	1	6.3	7	9.6	4	8.3	3	12.0
Age 50-59 years	1	3.3	0	0.0	1	5.6	0	0.0	2	2.7	2	4.2	0	0.0
Age 60-69 years	1	3.3	0	0.0	2	11.1	1	6.3	4	5.5	3	6.3	1	4.0
Age 70-79 years	0	0.0	0	0.0	1	5.6	1	6.3	2	2.7	1	2.1	1	4.0
Total	*30*	*100.0*	*9*	*100.0*	*18*	*100.0*	*16*	*100.0*	*73*	*100.0*	*48*	*100.0*	*25*	*100.0*
B. Gender														
Male	13	34.2	8	53.3	7	29.2	8	42.1	36	37.5	20	32.3	16	47.1
Female	25	65.8	7	46.7	17	70.8	11	57.9	60	62.5	42	67.7	18	52.9
Total	*38*	*100.0*	*15*	*100.0*	*24*	*100.0*	*19*	*100.0*	*96*	*100.0*	*62*	*100.0*	*34*	*100.0*

During the second round of interviews, fieldworkers were able to determine who had left the household since the previous interview by checking the names of the current members against the list of members that were part of the household during the first interview. The household was defined as those "people who live together at least four nights a week at the same address, eat together and share resources". After determining who had left the household, interviewers asked a number of questions regarding the characteristics of these persons, the reasons why they had left the household, what their current whereabouts were and whether and how they may have contributed to the household before leaving. According to the results presented in Table 33, a total of 96 or 5% of the 1909 persons included in wave I in the 387 households interviewed in both waves had left their respective households by wave II. The extent of out-migration was slightly higher in affected than in non-affected households (i.e. 6% in affected households compared to 3.8% in non-affected households). This tendency is understandable insofar as the pressures exerted on affected households (e.g. not being able to cope financially or having to cope with illness and/or death) may be more likely to results in the out-migration of household members than may be the case in non-affected households.

The difference between the different clusters of households in terms of the average age of the out-migrating member was not substantial (Table 33). In fact, the average age of out-migrating members was similar in the affected and non-affected groups, i.e. 28.3 years. However, a comparison across deciles of age seems to suggest that a slightly larger proportion of persons that left affected households are relatively young (i.e. teenagers aged nineteen or under) compared to non-affected households, where a larger proportion of persons that had left are of an age at which one would normally expect persons to leave their families (i.e. young adults aged 20-29 years). This contrast is particularly stark in the case of affected and non-affected households in Welkom, more so than is the case in Qwaqwa.

Table 34: Out-migration of household members between waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Relationship to head of household														
Head of household	0	0.0	1	6.7	1	4.2	0	0.0	2	2.1	1	1.6	1	2.9
Husband/wife/partner of household head	0	0.0	1	6.7	1	4.2	0	0.0	2	2.1	1	1.6	1	2.9
Son/daughter	8	21.1	5	33.3	7	29.2	11	57.9	36	37.5	20	32.3	16	47.1
Parent	1	2.6	0	0.0	2	8.3	1	5.3	4	4.2	3	4.8	1	2.9
Grandchildren	5	13.2	2	13.3	6	25.0	2	10.5	15	15.6	11	17.7	4	11.8
Sibling	3	7.9	0	0.0	4	16.7	1	5.3	8	8.3	7	11.3	1	2.9
Other family	8	21.1	3	20.0	2	8.3	4	21.1	17	17.7	10	16.1	7	20.6
Non-related person	8	21.1	3	20.0	1	4.2	0	0.0	12	12.5	9	14.5	3	8.8
Total	*38*	*100.0*	*15*	*100.0*	*24*	*100.0*	*19*	*100.0*	*96*	*100.0*	*62*	*100.0*	*34*	*100.0*

Interesting in terms of the gender of out-migrating members, is that persons that had left affected households are primarily female (62.5%), the only exception being the non-affected group of households in Welkom, where respectively 8 and 7 of the out-migrating members was male and female (Table 33). Although further analyses are required to investigate this aspect of migration in more detail, what it may suggest is that the traditional phenomenon of male migration may actually be evolving into a phenomenon of female migration.

Table 34 reports on the relationship to the household head of the person that had left the household. Evident is the relatively important role of the extended family in these predominantly African communities, particularly in affected households. A third or more of persons that had left the household was parents, grandchildren, siblings or other family of the head of the household, i.e. 49.2% of members of affected households compared to 38.2% of members of non-affected households. As expected, the largest single proportion of out-migrating household members was sons/daughters of the head of the household, which to a large extent may represent the normal practice of young adults leaving their parental homes during early adulthood. This practice was more descriptive of out-migration from non-affected households, with 47.1% of members that had left non-affected households being sons/daughters of the head of the household compared to 32.3% in the case of members that had left affected households. Affected households also saw a larger number of non-related persons leaving the household in comparison to non-affected households (i.e. 14.5% compared to 8.8%), which may hint at the important role of non-family members temporarily staying with the family to care for the ill or dying and/or at non-related household members being the first to be forced to leave the affected household due to the increasing pressure on resources of illness and/or death.

Table 35: Out-migration of household members between waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
A. Marital status														
Married	9	23.7	1	6.7	7	29.2	1	5.3	18	18.8	16	25.8	2	5.9
Single	17	44.7	7	46.7	5	20.8	10	52.6	39	40.6	22	35.5	17	50.0
Living together	3	7.9	2	13.3	0	0.0	0	0.0	5	5.2	3	4.8	2	5.9
Divorced	0	0.0	1	6.7	1	4.2	0	0.0	2	2.1	1	1.6	1	2.9
Separated	3	7.9	1	6.7	0	0.0	1	5.3	5	5.2	3	4.8	2	5.9
Widowed	2	5.3	0	0.0	2	8.3	3	15.8	7	7.3	4	6.5	3	8.8
Child < 16 years	4	10.5	3	20.0	9	37.5	4	21.1	20	20.8	13	21.0	7	20.6
Total	*38*	*100.0*	*15*	*100.0*	*24*	*100.0*	*19*	*100.0*	*96*	*100.0*	*62*	*100.0*	*34*	*100.0*
B. Destination														
Same neighbourhood	10	26.3	4	26.7	12	54.5	7	36.8	33	35.1	22	36.7	11	32.4
Same town	7	18.4	2	13.3	4	18.2	1	5.3	14	14.9	11	18.3	3	8.8
Town in same province	4	10.5	4	26.7	3	13.6	7	36.8	18	19.1	7	11.7	11	32.4
Town in another province	13	34.2	5	33.3	3	13.6	4	21.1	25	26.6	16	26.7	9	26.5
Another country	4	10.5	0	0.0	0	0.0	0	0.0	4	4.3	4	6.7	0	0.0
Total	*38*	*100.0*	*15*	*100.0*	*22*	*100.0*	*19*	*100.0*	*94*	*100.0*	*60*	*100.0*	*34*	*100.0*

The majority of persons that had left their respective households by the second round of interviews were single (40.6%), with 18.8% being married and 7.3% widowed (Table 35). 5% or less or out-migrating members were living together, separated or divorced. The major difference between the marital status of persons that had left affected as opposed to non-affected households is that a larger share of persons were married (25.8% in affected households compared to 5.9% in non-affected households), while a smaller share of persons were single (35.5% in affected households compared to 50% in non-affected households). In terms of destination, half of out-migrating members left for another residence within the same immediate community. Respectively 35.1% and 14.9% of members that had left their respective households moved to somewhere in the same neighborhood or the same town. Respectively 19.1% and 26.6% of persons left for a town in the same or in another province. Four persons or 4.3% of out-migrating members left for another country. The major difference between the destination of persons leaving affected and non-affected households is that persons that had left affected households were more likely to relocate to areas relatively close to home (i.e. the same neighborhood or same town), i.e. 55% of members from affected households compared to 41.2% of members from non-affected households. Persons that had left non-affected households in turn were more likely to relocate further from home (i.e. different towns within the same or a different province), i.e. 58.9% of members from non-affected households compared to 40.4% of members from affected households. The main reasons sited by respondents for these persons leaving their respective households can shed more light on the possible explanation of these differences (Table 36).

Table 36: Out-migration of household members between waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Main reason for leaving														
Employment	7	18.4	6	46.2	4	18.2	6	33.3	23	25.3	11	18.3	12	38.7
Marriage	6	15.8	1	7.7	3	13.6	1	5.6	11	12.1	9	15.0	2	6.5
Education	2	5.3	0	0.0	5	22.7	4	22.2	11	12.1	7	11.7	4	12.9
Staying with another relative or a friend	3	7.9	3	23.1	2	9.1	0	0.0	8	8.8	5	8.3	3	9.7
Staying with biological parents	11	28.9	2	15.4	3	13.6	1	5.6	17	18.7	14	23.3	3	9.7
Moved to new residence	3	7.9	0	0.0	2	9.1	5	27.8	10	11.0	5	8.3	5	16.1
Illness	1	2.6	0	0.0	0	0.0	1	5.6	2	2.2	1	1.7	1	3.2
Death	0	0.0	0	0.0	2	9.1	0	0.0	2	2.2	2	3.3	0	0.0
Other	5	13.2	1	7.7	1	4.5	0	0.0	7	7.7	6	10.0	1	3.2
Total	*38*	*100.0*	*13*	*100.0*	*22*	*100.0*	*18*	*100.0*	*91*	*100.0*	*60*	*100.0*	*31*	*100.0*

The most frequent reasons sited by respondents for persons leaving their respective households are to stay with their biological parents, other relatives or friends (27.5%), to seek or take up employment (25.3%), to get married (12.1%) or for educational purposes (12.1%), or to move to a new residence (11%)(Table 36). 4.4% of respondents indicated that the persons left the household specifically because of reasons related to illness or death. There are stark differences between the reasons why members of affected as opposed to non-affected households had left their respective households. In the case of non-affected households, the reasons were mainly related to normal migration, i.e. migration because of employment, a move to a new residence, or marriage or education, which together represents 74.2% of responses. In affected households in turn 36.6% of persons moved because of relatively uncommon reasons, i.e. to stay with parents, other family or friends or because of illness or death. Yet, just more than half of responses are still related to so-called conventional causes for migration, i.e. employment, marriage, education and change of residence. However, the results do support the argument that in affected households in particular migration may consist of a more temporary movement of persons between different households in the immediate community rather than a longer-term movement of persons further from their former place of residence. Again, the results from subsequent rounds of interviews are needed to substantiate this finding regarding migration patterns.

Table 37: Out-migration of household members between waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
A. Did person contribute to household income before leaving														
Yes	9	23.7	3	20.0	4	17.4	2	10.5	18	18.9	13	21.3	5	14.7
B. Average value of monthly monetary contribution (Rand)														
Average loss in monthly household income	403 (8)		308 (3)		480 (3)		255 (2)		381 (16)		424 (11)		287 (5)	
C. Nature of in-kind contribution (multiple response)														
Food	1	100.0	0	0.0	1	50.0	0	0.0	2	66.7	2	66.7	0	0.0
Fuel	0	0.0	0	0.0	1	50.0	0	0.0	1	33.3	1	33.3	0	0.0
Total	*1*	*100.0*	*0*	*100.0*	*2*	*100.0*	*0*	*100.0*	*3*	*100.0*	*3*	*100.0*	*0*	*100.0*

Lastly, respondents were asked if and in what way persons that had left their respective households had contributed to the household (Table 37). Approximately 20% of persons did in some way contribute to the household before leaving, with a larger proportion (21.3%) of members that had left affected households having contributed to the household compared to persons that had left non-affected households (14.7%). The majority (88.9%) of these persons contributed to the household in monetary terms. The average monthly value of the monetary contribution foregone amounted to R381. The monetary loss was substantially higher in affected households (R424 per month) when compared to non-affected households (R287 per month). These foregone earnings represent respectively 35.8% and 16.3% of the current average monthly household income of affected and non-affected households and respectively 60.2% and 29.2% of current average monthly household expenditure. Two affected households indicated that the person that had left the household contributed in-kind rather than in monetary terms. These contributions consisted of food and/or fuel. Hence, the departure of persons from affected households may appear to represent a greater loss to households in terms of foregone contributions than is the case with the departure of persons from non-affected households. As in other cases, this would require more detailed analyses of the data from a larger number of subsequent panels to establish the causal relationships between out-migration of household members, the resulting loss of monetary and non-monetary contributions to the household, and the apparent deepening of poverty in affected households.

Table 38: Income and composition of income in wave I and II

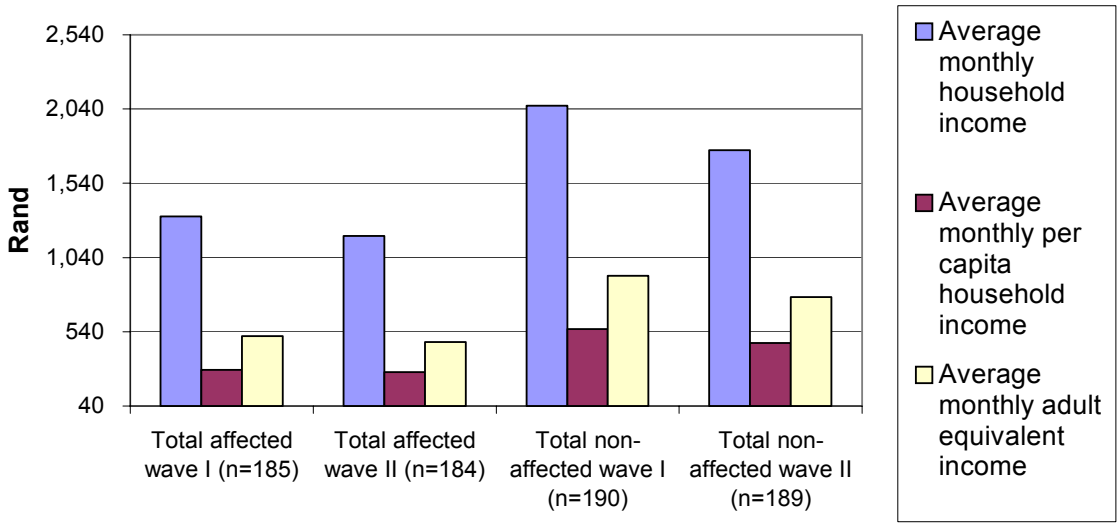
Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
A. Income (Rand)														
Average monthly household income	1648	1509	2632	2079	971	883	1497	1458	1695	1479	1315	1186	2064	1764
Average monthly per capita household income	333	307	709	513	231	227	405	417	422	367	283	268	557	464
Average monthly adult equivalent income	615	565	1168	879	401	382	665	670	716	624	510	471	916	773
Sample (n)	*94*	*89*	*95*	*93*	*91*	*95*	*95*	*96*	*375*	*373*	*185*	*184*	*190*	*189*
B. Composition of income (%)														
Employment income	58.3	59.9	66.9	67.0	31.3	34.4	40.5	47.9	49.4	52.1	45.0	46.7	53.7	57.3
Non-employment income	34.7	31.4	24.9	23.6	48.2	42.3	34.2	33.3	35.4	32.7	41.3	37.0	29.6	28.5
Remittance income	7.0	8.7	8.2	9.4	20.4	23.3	25.3	18.8	15.2	15.2	13.6	16.2	16.7	14.2
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Note: Values were only calculated for those households that reported income estimates.

INCOME

Affected households are poorer than non-affected households, regardless of whether income is measured at the household or individual level or in adult equivalent terms (Table 38 and Figure 10)[2]. This is the case in wave I and in wave II of the survey. Per capita and adult equivalent income in affected households represents only between 50% and 60% of the levels of income in non-affected households. Also evident is that income has declined between the two waves, both in the case of affected and non-affected households as well as in the total sample. These differences in some cases are relatively small, but may be pointing towards a general decline in levels of income. However, it is felt that more panels are required to determine real trends in household income over time, particularly insofar as income is measured off a relatively low base in this case (i.e. the study population generally is quite poor), which makes it difficult to distinguish between real trends and small differences in income.

Figure 10: Average household income in wave I and II



[2] Estimates of household income and expenditure were adjusted for differences in household size by dividing total monthly income and expenditure by n^{α}, where n represents the number of household members and α an adjustment for household economies of scale (Filmer and Pritchett, 1998: 13). According to Lanjouw and Ravallion (1995) and Drèze and Sen (1997), a α coefficient of 0.6 represents an adequately robust and reliable adjustment for household economies of scale.

There are also significant differences in the composition of the income of affected of and non-affected households (Table 38). Affected households are more dependent on non-employment sources of income (which consists primarily of government grants but also includes the value of own produce consumed by the household), while a smaller proportion of their income consists on employment income. This is particularly evident in Qwaqwa, where relatively high levels of unemployment and the rural nature of the site mean that households are even more dependent on non-employment sources of income. This greater dependence of affected households on non-employment sources of income is also understandable insofar as affected households face higher dependency ratios, are more likely to be subject to morbidity and mortality and also face higher unemployment levels. Differences between affected and non-affected households in the share of income originating from remittances are not that pronounced, although it is evident that households in Qwaqwa are more dependent on remittance income than are households in Welkom. Remittances make up between 18.8% and 25.3% of household income in Qwaqwa, while in Welkom remittances make up less than 10% of household income.

EXPENDITURE

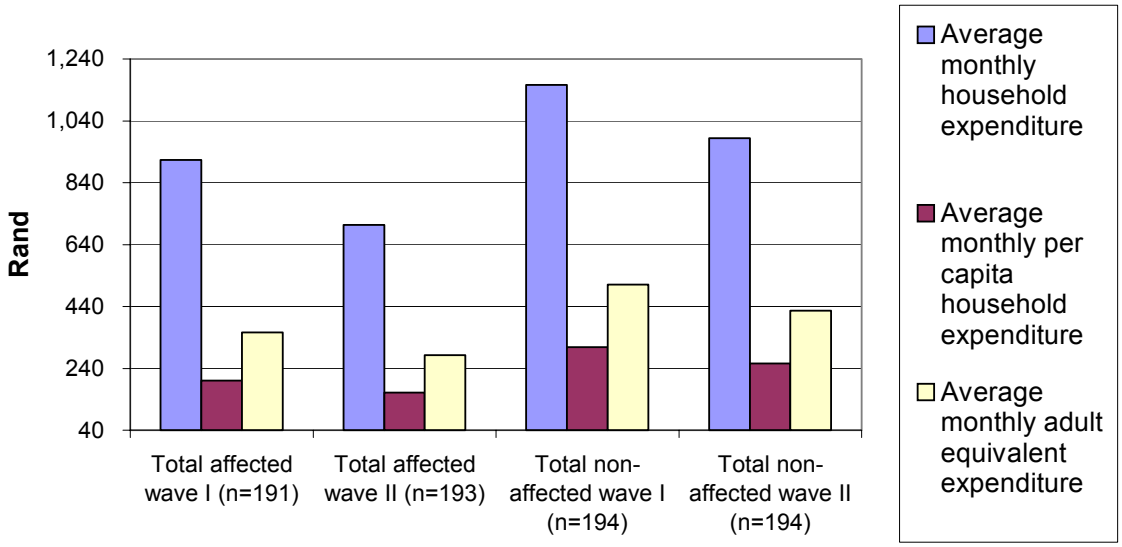
As in the case of income, affected households are also poorer than non-affected households when expenditure is used a measure of socio-economic status, both in wave I and in wave II of the survey (Table 39 and Figure 11). Average monthly household expenditure, per capita monthly expenditure and adult equivalent monthly expenditure are lower in the affected group of households than in the non-affected group. Although differences are not always that pronounced in terms of total household expenditure, the fact that affected households generally are larger than non-affected households means that per capita and adult equivalent expenditure is only between 60% and 70% of the levels of expenditure in non-affected households. As was the case with income, the apparent decline in expenditure from the time of wave I to that of wave II requires more panels to determine the true nature of the trend in expenditure.

Table 39: Expenditure in wave I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
A. Expenditure (Rand)														
Average monthly household expenditure	1194	931	1384	1174	642	479	937	802	1036	844	914	704	1156	984
Average monthly per capita household expenditure	242	194	353	281	159	131	265	232	255	209	200	162	308	256
Average monthly adult equivalent expenditure	446	354	594	487	269	211	429	370	434	355	356	282	510	427
Sample (n)	*94*	*96*	*95*	*95*	*97*	*97*	*99*	*99*	*385*	*387*	*191*	*193*	*194*	*194*
B. Food expenditure (Rand)														
Average monthly household food expenditure	395	327	410	402	251	219	314	300	342	312	322	273	361	350
Average monthly per capita household food expenditure	78	67	101	95	64	63	93	90	84	79	71	65	97	93
Average monthly adult equivalent food expenditure	146	123	172	165	107	99	147	142	143	132	126	111	159	153
Sample (n)	*92*	*94*	*94*	*95*	*95*	*96*	*98*	*99*	*379*	*384*	*187*	*190*	*192*	*194*

Note: Values were only calculated for those households that reported expenditure estimates.

Figure 11: Average household expenditure in wave I and II



It is also important to look at differences in expenditure on food, particularly insofar as lower levels of expenditure may impact negatively on the nutrition. Affected households spend less on food than non-affected households, with per capita and adult equivalent levels of expenditure on food representing between 70% and 80% of that in non-affected households (Table 39 and Figure 12). This is the case both in wave I and in wave II. In the longer run, this may contribute to malnutrition amongst household members.

Figure 12: Average household expenditure on food in wave I and II

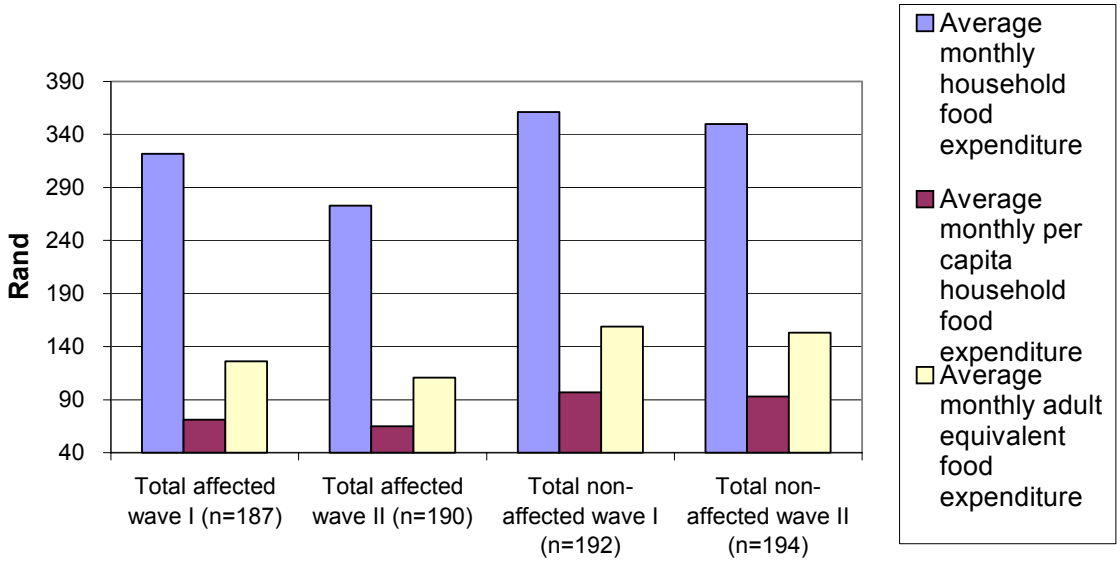


Table 40: Expenditure patterns in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
A. Composition of total expenditure (%)														
Regular monthly expenditure	95.5	92.4	94.6	94.6	87.9	94.9	86.0	94.5	90.9	94.1	91.6	93.7	90.2	94.6
Remittances	3.6	7.0	4.4	4.5	6.2	2.2	6.9	2.0	5.3	3.9	4.9	4.6	5.7	3.2
Irregular, once-off expenditure	1.0	0.7	1.0	0.9	5.9	2.9	7.1	3.5	3.8	2.0	3.5	1.8	4.1	2.2
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
B. Composition of regular expenditure (%)														
Food	48.7	44.9	44.7	45.0	53.9	55.3	53.2	52.6	50.2	49.5	51.3	50.1	49.0	48.9
Education	3.0	5.2	5.3	5.2	1.4	1.1	3.8	2.2	3.3	3.4	2.2	3.1	4.5	3.6
Health care	3.5	4.1	4.4	3.1	5.6	3.1	2.1	2.7	3.9	3.3	4.5	3.6	3.2	2.9
Household maintenance	19.5	23.3	19.1	20.8	20.7	24.7	21.7	22.8	20.3	22.9	20.1	24.0	20.4	21.8
Transport	8.4	5.2	9.4	8.1	5.3	3.9	4.7	5.7	6.9	5.7	6.8	4.6	7.1	6.9
Clothing	2.7	4.1	2.6	4.1	1.7	1.6	3.3	3.0	2.6	3.2	2.2	2.9	3.0	3.5
Rent	2.3	1.8	1.4	1.3	0.5	1.2	0.2	0.1	1.1	1.1	1.4	1.5	0.8	0.7
Personal items	3.1	4.7	4.0	5.9	2.7	6.0	3.5	7.4	3.3	6.0	2.9	5.4	3.7	6.7
Durables	8.9	5.7	9.1	6.5	8.2	3.2	7.5	3.6	8.4	4.7	8.6	4.4	8.3	5.0
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Note: Values were only calculated for those households that reported expenditure estimates.

More than 90% of household expenditure consists of regular monthly household expenditure (Table 40). Approximately 5% are remittances sent to persons outside of the household, while just less than 5% of total household expenditure consists of irregular, once-off expenditure. Interesting to note is that a larger share of total household expenditure in Qwaqwa is made up of irregular, once-off expenditures compared to Welkom, which makes sense insofar as households in a poorer, rural community often spend money as and when they have it rather than being able to spend on a regular basis each month. The differences between Qwaqwa and Welkom in the share of total household expenditure consisting of remittances to persons outside the household were not that pronounced.

Important in terms of understanding the impact of HIV/AIDS on the economy are differences in expenditure patterns. The following differences can be observed in the composition of regular monthly expenditure (Table 40). Affected households, in terms of the composition of household expenditure, allocate relatively MORE of their resources to food, health care, transport and rent and LESS to education, clothing, and personal items when compared to non-affected households. Differences in the share of expenditure allocated to household maintenance and durables are relatively small and may not indicate significant differences in patterns of expenditure.

These differences in regular expenditure patterns become even clearer when comparing the expenditure patterns across households that did not have to cope with morbidity, those that only had to cope with morbidity in one wave, and those that included at least one ill household member in wave I and in wave II. The shares of different types of expenditure in total regular household expenditure were here calculated across the data for wave I and wave II by adding together the regular expenditure estimates recorded in the two rounds of interviews. These results are reported in Table 41 and Figure 13.

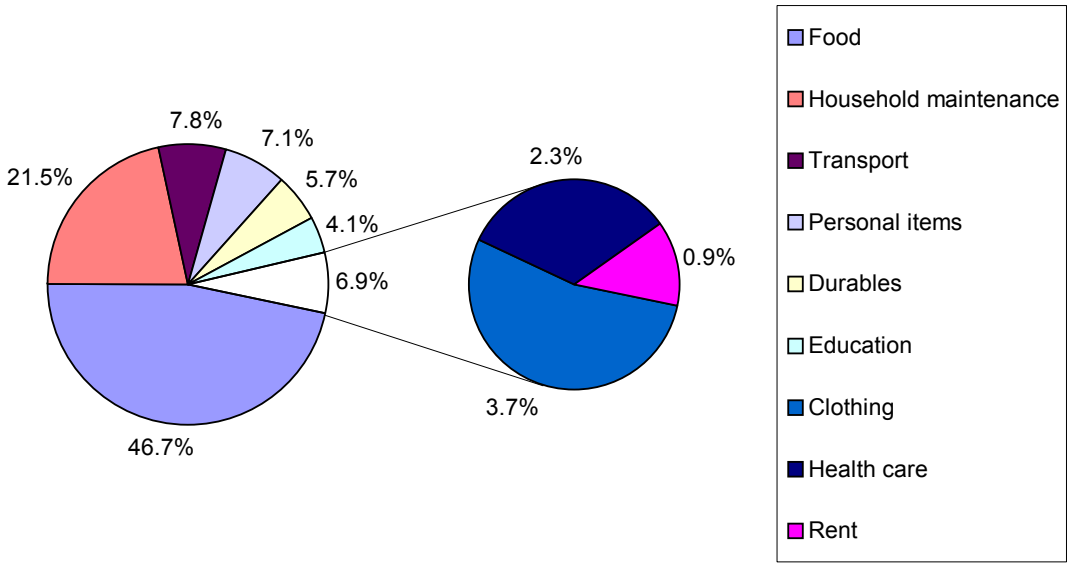
Table 41: Expenditure patterns by presence of morbidity in waves I and II

Type of expenditure	Never affected by illness (n=183)	Affected by illness in one wave (n=126)	Affected by illness in both waves I and II (n=97)
Food	45.8	51.3	51.0
Education	4.4	3.5	2.2
Health care	2.9	3.8	5.5
Household maintenance	20.2	20.9	21.6
Transport	7.7	6.7	5.3
Clothing	3.3	3.1	1.9
Rent	1.5	1.4	1.4
Personal items	5.4	4.0	4.1
Durables	8.8	5.4	7.0
Total	*100.0*	*100.0*	*100.0*

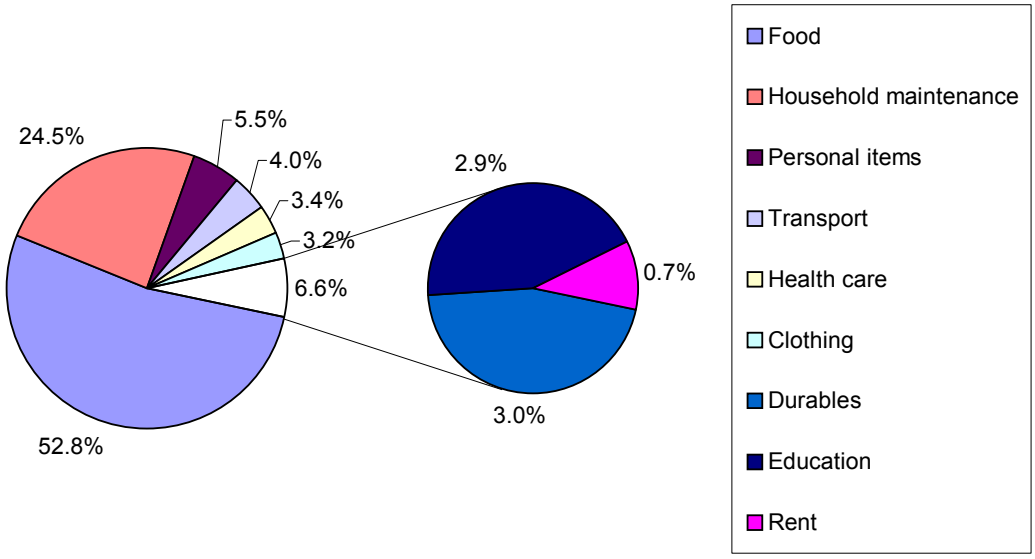
In the case of the comparison of those households at the extremes, i.e. households that were not affected by illness compared to households affected by illness in both waves of the survey, a SMALLER proportion of household resources are allocated to expenses on food, health care and household maintenance, while a LARGER share goes to expenditure on education, clothing, personal items, transport and durables. The share of expenditure on rent in regular, monthly household expenditure is more or less similar across the three groups of households. Further analysis of expenditure patterns relative to the length of illness and relative to changes over time in the number of ill persons in the household will shed more light on the impact of illness on shifts in regular household expenditure.

Figure 13: Expenditure patterns by incidence of morbidity in wave I and II

(a) Households not affected by illness in either wave I or wave II



(b) Households affected by illness in at least one wave



(c) Households affected by illness in wave I and in wave II

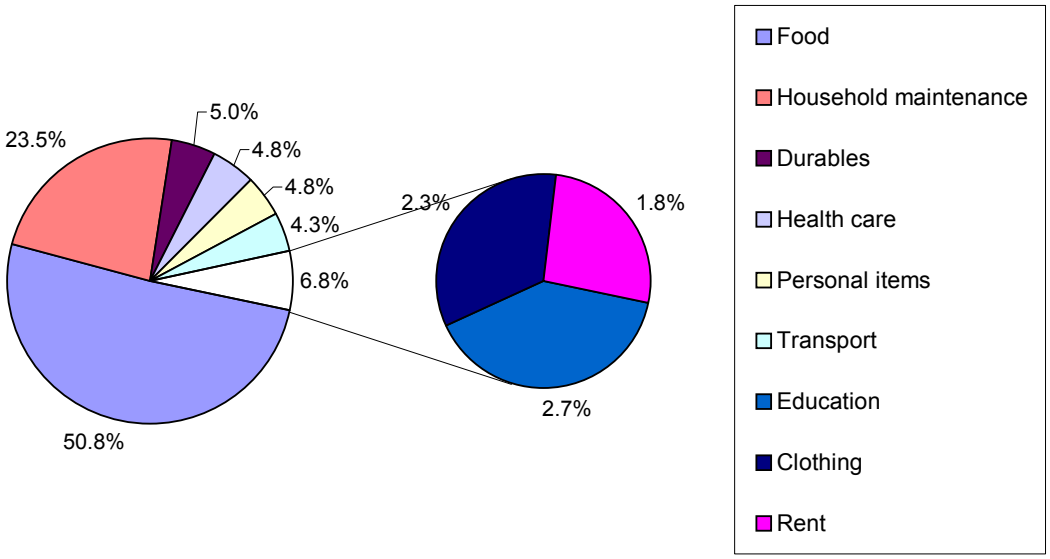


Table 42: Expenditure patterns by presence of mortality in waves I and II

Type of expenditure	Never affected by death (n=341)	Affected by death in one wave only (n=59)	Affected by death in both waves I and II (n=6)
Food	48.1	52.3	50.6
Education	3.8	2.3	3.9
Health care	3.7	4.0	3.8
Household maintenance	20.8	19.7	26.1
Transport	7.1	6.0	1.3
Clothing	2.8	3.6	4.8
Rent	1.3	2.2	0.0
Personal items	4.7	3.5	9.1
Durables	7.6	6.4	0.4
Total	*100.0*	*100.0*	*100.0*

The same analysis was performed based on differences of the incidence of death at the household level. Table 42 draws a comparison between regular expenditure patterns in households that have not had to cope with a death, households that were affected by a

death in one wave only, and households that were affected by death in wave I and in wave II. The relatively small number of households affected by death in both waves (n=6) makes if difficult to distinguish clear-cut differences between three groups of households, something on which the further analysis of data from future panels may shed more light. As a result, the emphasis is mainly on the comparison of the results in the second and third columns of Table 42. This comparison between households not affected by death and those affected by death in at least one wave suggests that household affected by death spends relatively MORE of their available resources on food, health care, clothing and rent, and a LESSER share on education, household maintenance, transport, personal items and durables compared to households where no death had occurred in the six months before either interview. Further analysis of expenditure patterns relative to the time elapsed since these deaths and relative to changes over time in the number of deaths experienced by a household will shed more light on the impact of death on shifts in regular household expenditure.

Particular important in terms of the above results is the apparent crowding out of household expenditure on education, personal items and durables in affected households in favor of expenditure on health care, food and other basis necessities. The former issue is also explored later on in this document in terms of looking at differences in enrollment rates amongst children and orphaned children.

SAVINGS, DEBT AND REPAYMENT OF DEBT

In order to understand the financial responses of affected and non-affected households to changes in households economics, which is discussed in the subsequent pages, it is necessary to look at differences between affected and non-affected households in terms of current levels of savings, debt and repayment of debt.

Table 43: Savings, debt and repayment of debt

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
A. Savings														
Average monthly household savings (Rand)	252	195	382	368	198	213	349	294	302	272	224	204	366	331
Sample (n)	*44*	*39*	*58*	*46*	*50*	*41*	*55*	*47*	*207*	*173*	*94*	*80*	*113*	*93*
B. Debt														
Average total household debt (Rand)	7531	9099	13153	13810	3355	2779	4010	3031	6458	7939	5167	6653	7812	8988
Sample (n)	*46*	*57*	*42*	*63*	*60*	*36*	*59*	*51*	*207*	*207*	*106*	*93*	*101*	*114*
C. Repayment of debt														
Average monthly repayment of household debt (Rand)	545	280	629	369	295	270	361	245	459	301	425	276	495	321
Number of months required to settle total current debt	13.8	32.5	20.9	37.4	11.4	10.3	11.1	12.4	14.1	26.4	12.2	24.1	15.8	28.0
Sample (n)	*48*	*56*	*43*	*65*	*44*	*31*	*43*	*41*	*178*	*193*	*92*	*87*	*86*	*106*

Note: The sample sizes differ from those interviewed because data on savings, debt and repayment of debt were not available for all households.

Affected households save approximately 40% less than non-affected households on a monthly basis (Table 43 and Figure 13), both in wave I and in wave II. This is understandable insofar as affected households generally face higher unemployment burdens, have to divide household resources between a larger number of people, and also have to face illness and morbidity which requires yet further expenditure on health care and/or funerals. Non-affected households have considerably higher levels of current debt than non-affected households, which is understandable insofar as higher levels of income makes it possible for these households to borrow larger sums of money. However, there are no considerable differences between the monthly repayment of debt by affected and non-affected households. Also evident is the relatively long time it will take these households to settle their current debt, thus illustrating the substantial pressure that debt puts on poor households. It will on average take these households between 1 and 3 years to settle their current debt. This implies that affected households may in the longer run have little scope to utilize savings to cope with illness and morbidity, while borrowing to cope may push them even deeper into poverty. As was the case with trends in income and expenditure, the apparent decline for example in levels of savings requires more panels to determine the true nature of these trends.

Figure 13: Average household savings in wave I and II

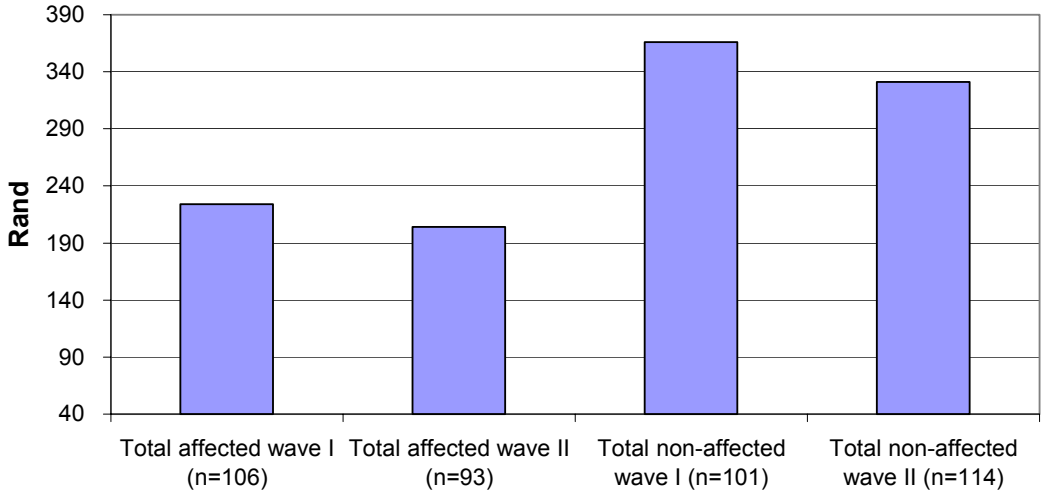


Table 44: Changes between waves I and II in use of financial coping strategies

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
A. Used savings														
Total sample	96	100.0	95	100.0	96	100.0	99	100.0	386	100.0	192	100.0	194	100.0
Wave I	9	9.4	6	6.3	9	9.4	4	4.0	28	7.3	18	9.4	10	5.2
Wave II	5	5.2	3	3.2	5	5.2	3	3.0	16	4.1	10	5.2	6	3.1
Waves I and II	1	1.0	1	1.1	0	0.0	1	1.0	3	0.8	1	0.5	2	1.0
P (Fischer's Exact test)		*1.000*		*1.000*		*1.000*		*1.000*				*1.000*		*1.000*
B. Sold assets														
Total sample	95	100.0	94	100.0	97	100.0	99	100.0	385	100.0	192	100.0	193	100.0
Wave I	3	3.2	2	2.1	8	8.2	7	7.1	20	5.2	11	5.7	9	4.7
Wave II	1	1.1	0	0.0	1	1.0	0	0.0	2	0.5	2	1.0	0	0.0
Waves I and II	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
P (Fischer's Exact test)		*1.000*		*1.000*		*1.000*		*1.000*				*1.000*		*1.000*
C. Borrowed money														
Total sample	92	100.0	91	100.0	95	100.0	99	100.0	377	100.0	187	100.0	190	100.0
Wave I	18	19.6	16	17.6	40	42.1	29	29.3	103	27.3	58	31.0	45	23.7
Wave II	9	9.8	13	14.3	20	21.1	20	20.2	62	16.4	29	15.5	33	17.4
Waves I and II	3	3.3	4	4.4	11	11.6	8	8.1	26	6.9	14	7.5	12	6.3
P (Fischer's Exact test)		*1.000*		*1.000*		*0.211*		*1.000*				*1.000*		*1.000*

COPING FINANCIALLY WITH CHANGES IN INCOME AND EXPENDITURE

Households generally have three alternatives in terms of coping with changes in income and expenditure, i.e. to borrow, to utilize savings, or to sell assets. In the subsequent paragraphs the differences between affected and non-affected households in terms of these financial responses are explored. Table 44 reports on the percentage of households that have exercised these financial coping strategies in wave I, in wave II, and in wave I and in wave II. The most frequent responses seem to be borrowing, followed by the utilization of savings and the sale of assets (Table 44 and Figures 14 to 16). This makes sense when considering that the households included in the sample are primarily poorer households with few assets and low income, which explains why a relatively small percentage of households utilized savings or sold assets.

A larger percentage of affected households exercised these financial coping strategies compared to non-affected households, both in wave I and in wave II. The only exception is the comparison between the number of affected and non-affected households that borrowed money in the six months prior to the second round of interviews, which suggests that non-affected households were more likely to access new loans compared to affected households. However, this may also reflect the extent to which non-affected households, which have been shown to be more affluent than affected households as far as levels of income and of expenditure is concerned, have relatively more access to loans compared to affected households, which may have already exhausted there limited access to credit. Table 44 also suggests that households in Qwaqwa are more likely than those in Welkom to borrow money and to sell assets, which illustrates how households living in relatively worse circumstances (i.e. Qwaqwa being known to be poorer than Welkom) are forced to exercise these coping strategies more readily compared to households living in an area where poverty is less pronounced.

Figure 14: Percentage households that borrowed money in wave I and in wave II

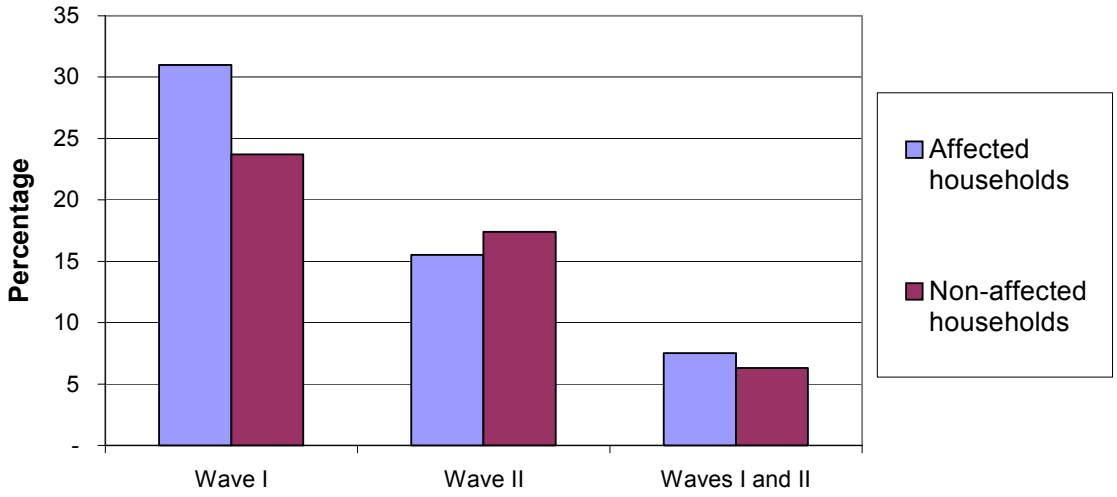


Figure 15: Percentage households that utilized savings in wave I and in wave II

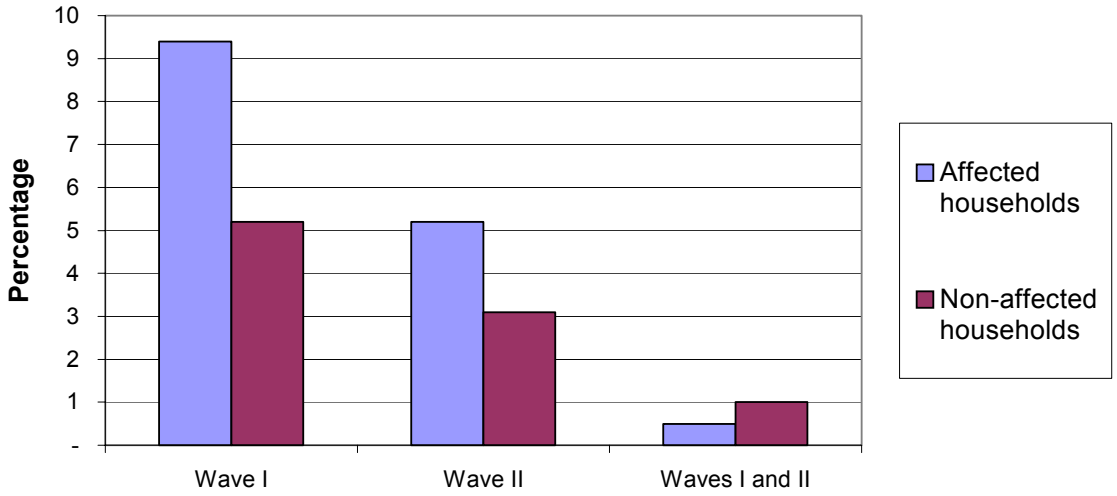
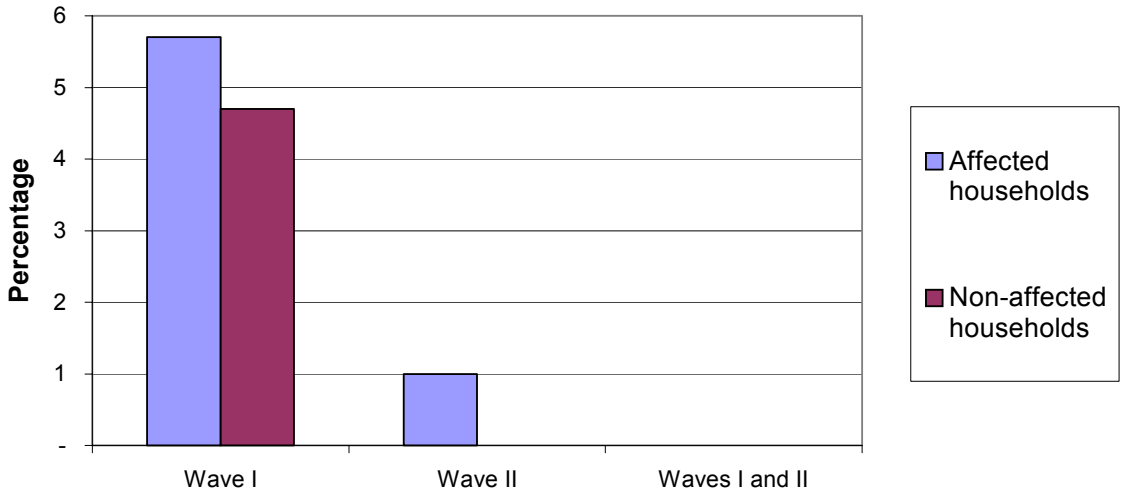


Figure 16: Percentage households that sold an asset in wave I and in wave II



Evidently, a considerably smaller percentage of households exercised these strategies in wave II compared to wave I. The decline in the frequency may be the result of changes in the references period employed when asking these particular questions were asked in the first and second round of interviews. During the first round of interviews households were asked whether they had sold an asset or borrowed money in the past 12 months prior to the interview. During the second round of interviews this reference period was changed to six months so as to only record details about financial responses since the previous interview. Again, as was the case elsewhere, further follow-up interviews will make it possible to distinguish more clearly the trends in these variables.

Only a very few households exercised the same strategy in both waves, except for borrowing, where respectively 7.5% and 6.3% of affected and non-affected households borrowed money in wave I and in wave II. The fact that very few households utilized the same strategy consecutively makes sense insofar as households may employ a combination of these strategies over time to cope with financial pressures, e.g. borrowing money at first, utilizing savings as a next step and only selling an asset as a last resort. Furthermore, differences in the duration of the 'crisis' necessitating the strategy may also mean that similar strategies are not used in consecutive waves. As in the case of other analyses presented in these pages, it is felt that data from more panels are required to

fully analyze these changes over time in the use of financial coping strategies, particularly in relation to the occurrence of illness and/or death. It also needs to be kept in mind that the decrease in the frequency of new borrowing and asset sales from wave I to wave II may be attributable to the change in the reference period for these two questions.

Households were also asked whether they received a lump-sum payment or inheritance following a death, which would make it possible for households to cope better with the effect of this death on household finances. However, only in 9% (4/44 deaths in wave I) and 6% (2/34 deaths in wave II) of cases did households where a death had occurred indicate that they had received a lump-sum payment following the death. The lump-sum payment mainly originated from insurance and workman's compensation payouts. The lump-sum payments were in all cases used to pay for funeral costs. The fact that lump-sum payments in this population are the exception rather than the rule is understandable insofar as very few of the deceased actually was employed prior to their death and that most belong to relatively poor households, which lessens the possibility of these persons benefiting from life insurance and/or employment benefits. Households received an inheritance following the death of the person in the case of 16% (7/44 deaths in wave I) and 12% (4/34 deaths in wave II) of cases. These inheritances in most cases consisted of clothing and a shack/house belonging to the deceased, while in one case the inheritance also included a car. In the very few cases where the inheritance did include money it was a fairly little amount, which means that it for the affected households in this sample present a relatively unimportant opportunity for coping with the impact of a death. This may also explain why a relatively large proportion of households had to borrow, utilize savings or sell assets to cope with the financial pressures related to the death.

The discussion in the subsequent paragraphs focuses on the specific details of these financial coping strategies, e.g. the way in which and the reasons why households exercised these strategies. As such, the focus is not on comparing those households interviewed in both wave I and in wave II, but to separately analyze the information from the two rounds of interviews, with a view to determining the extent to which the results from wave II support the results of wave I.

Table 45: Role of borrowing in risk management in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
A. Incidence														
Total sample	100 (101)	100 (92)	100 (100)	100 (91)	100 (101)	100 (95)	100 (104)	100 (99)	100 (406)	100 (377)	100 (202)	100 (187)	100 (204)	100 (190)
Borrowed money in past 12 months (wave I) or past 6 months (wave II)	19 (19)	10 (9)	17 (17)	14 (13)	41 (41)	21 (20)	30 (31)	20 (20)	27 (108)	16 (62)	30 (60)	16 (29)	24 (48)	17 (33)
- Affected by illness	*63 (12)*	*56 (5)*	*18 (3)*	*31 (4)*	*76 (31)*	*55 (11)*	*29 (9)*	*15 (3)*	*51 (55)*	*37 (23)*	*72 (43)*	*55 (16)*	*25 (12)*	*21 (7)*
- Affected by death	*26 (5)*	*22 (2)*	*0 (0)*	*8 (1)*	*24 (10)*	*20 (4)*	*3 (1)*	*0 (0)*	*15 (16)*	*11 (7)*	*25 (15)*	*21 (6)*	*2 (1)*	*3 (1)*
B. Sum borrowed relative to average income and total debt														
Average amount borrowed (Rand)	3082	1693	2623	7615	581	944	713	999	1380	2469	1373	1177	1389	3605
- As % of average annual household income	*15.3*	*12.6*	*11.6*	*36.7*	*20.7*	*16.7*	*6.9*	*93.7*	*14.2*	*44.3*	*18.9*	*15.4*	*8.5*	*70.6*
- As % of total current debt	*48.2*	*44.6*	*68.2*	*42.6*	*63.7*	*74.2*	*71.0*	*83.2*	*64.2*	*65.9*	*59.2*	*65.1*	*70.1*	*66.7*

(i) New borrowing

During wave I, a slightly larger number of non-affected households have borrowed money in the twelve months prior to the survey compared to non-affected households (29.7% versus 23.5%)(Table 45). By wave II, 16% and 17% respectively of affected and non-affected households had borrowed money in the six months prior to the follow-up interview. In wave I 72% and 25% of the affected household that borrowed money were respectively affected by illness and death, compared with only 25% and 2% of non-affected households respectively being affected by illness and death. The results for wave II paint a similar picture, with 55% and 21% of the affected households that borrowed money being respectively affected by illness and death, compared to only 21% and 3% of non-affected households.

The purpose for which the households borrowed this money also suggests that the HIV/AIDS epidemic do play a role in causing household to take on increasing levels of debt (Table 46). A relatively larger proportion of responses by affected households indicated that the money was used to pay for funerals and medical expenses, whereas a relatively larger proportion of non-affected households indicated that the money was used to pay for education and clothing. Similar differences were uncovered in the comparison of expenditure patterns in affected and non-affected households.

Table 46: Role of borrowing in risk management in waves I and II (continued)

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
A. Purpose of borrowing (multiple response)														
Food	20 (4)	22 (2)	5 (1)	38 (5)	44 (20)	46 (11)	54 (20)	44 (11)	37 (45)	41 (29)	37 (24)	39 (13)	38 (21)	42 (16)
Education	10 (2)	0 (0)	16 (3)	8 (1)	4 (2)	4 (1)	14 (5)	12 (3)	10 (12)	7 (5)	6 (4)	3 (1)	14 (8)	11 (4)
Durables	20 (4)	11 (1)	11 (2)	8 (1)	4 (2)	4 (1)	8 (3)	0 (0)	9 (11)	4 (3)	9 (6)	6 (2)	9 (5)	3 (1)
Medical expenses	5 (1)	0 (0)	0 (0)	0 (0)	18 (8)	4 (1)	0 (0)	8 (2)	7 (9)	4 (3)	14 (9)	3 (1)	0 (0)	5 (2)
Funeral	20 (4)	33 (3)	11 (2)	8 (1)	4 (2)	17 (4)	3 (1)	0 (0)	7 (9)	11 (8)	9 (6)	21 (7)	5 (3)	3 (1)
Clothing	0 (0)	0 (0)	11 (2)	8 (1)	7 (3)	8 (2)	11 (4)	8 (2)	7 (9)	7 (5)	5 (3)	6 (2)	11 (6)	8 (3)
Repayment of debt	15 (3)	22 (2)	16 (3)	8 (1)	2 (1)	0 (0)	0 (0)	0 (0)	6 (7)	4 (3)	6 (4)	6 (2)	5 (3)	3 (1)
Household maintenance	5 (1)	11 (1)	11 (2)	23 (3)	4 (2)	17 (4)	3 (1)	12 (3)	5 (6)	15 (11)	5 (3)	15 (5)	3 (3)	16 (6)
Other	5 (1)	0 (0)	21 (4)	0 (0)	11 (5)	0 (0)	8 (3)	16 (4)	11 (13)	6 (4)	9 (6)	0 (0)	13 (7)	11 (4)
Total	*100 (20)*	*100 (9)*	*100 (19)*	*100 (13)*	*100 (45)*	*100 (24)*	*100 (37)*	*100 (25)*	*100 (121)*	*100 (71)*	*100 (65)*	*100 (33)*	*(56)*	*100 (38)*
B. Borrowed from (multiple response)														
Relative/friend	42 (8)	40 (4)	33 (6)	54 (7)	81 (33)	82 (18)	76 (25)	75 (15)	65 (72)	68 (44)	68 (41)	69 (22)	61 (31)	67 (22)
Money/micro-lender	42 (8)	40 (4)	33 (6)	15 (2)	15 (6)	18 (4)	15 (5)	15 (3)	23 (25)	20 (13)	23 (14)	25 (8)	22 (11)	15 (5)
Employer	11 (2)	0 (0)	28 (5)	23 (3)	0 (0)	0 (0)	6 (2)	5 (1)	8 (9)	6 (4)	3 (2)	0 (0)	14 (7)	12 (4)
Bank	0 (0)	10 (1)	6 (1)	8 (1)	2 (1)	0 (0)	3 (1)	5 (1)	3 (3)	5 (3)	2 (1)	3 (1)	4 (2)	6 (2)
Stokvel	0 (0)	0 (0)	0 (0)	0 (0)	2 (1)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	2 (1)	0 (0)	0 (0)	0 (0)
Government agency	5 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	2 (1)	0 (0)	0 (0)	0 (0)
Landlord	0 (0)	10 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (1)	0 (0)	3 (1)	0 (0)	0 (0)
Total	*100 (19)*	*100 (10)*	*100 (18)*	*100 (13)*	*100 (41)*	*100 (22)*	*100 (33)*	*100 (20)*	*100 (111)*	*100 (65)*	*100 (60)*	*100 (32)*	*100 (51)*	*100 (33)*

The relatively high percentage (i.e. approximately more or less 40%) of both affected and non-affected households that indicated that the money was required to pay for food also indicates that borrowing is a common way for households caught up in poverty to survive, with poverty and unemployment being relatively high in both communities (Table 46). The danger of course in the longer run is that this will move households deeper into poverty as more resources are crowded out in favor of debt repayments in the absence of improvements in household income. The reality of this threat is clear when looking at the amount of money borrowed relative to the total current debt of these households. New borrowing on average represents more than 60% of current debt. This may be particularly devastating for households affected by illness and death, given that these households also have to cope with increased medical expenses and funeral costs.

In the total affected and non-affected samples money was borrowed from relatives and friends in almost 70% of cases, while between 15% and 25% of loans were obtained from money- or micro-lenders (Table 46). In the case of non-affected households, who generally face lower levels of unemployment, a considerably larger share of households borrowed from their employer compared to affected households, particularly in Welkom. Also of interest to note is that particularly affected households in Welkom were more likely to borrow money from money- or micro-lenders, while in Qwaqwa households mostly obtained loans from relatives and friends.

Table 47: Role of savings in risk management in waves I and II

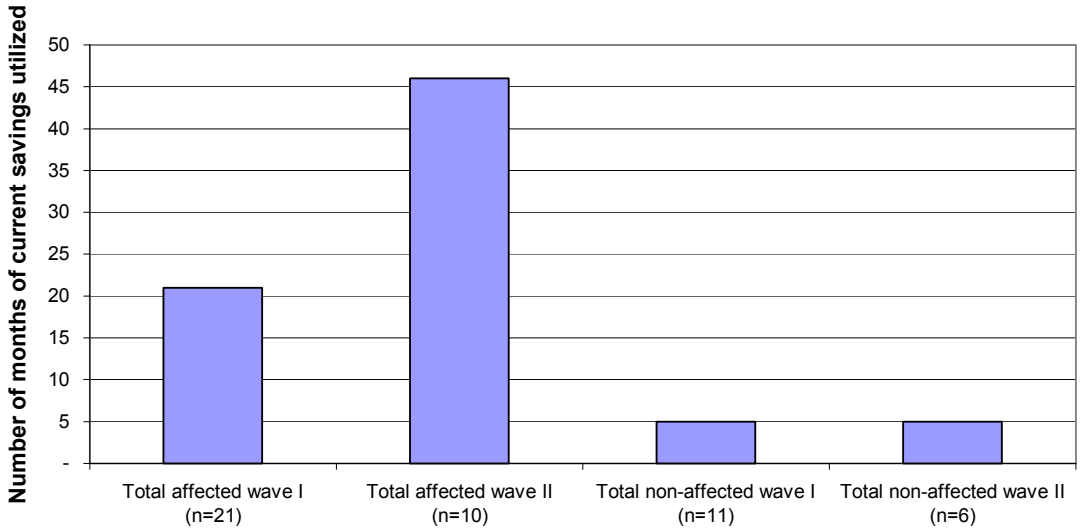
Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
A. Incidence														
Total sample	100 (101)	100 (96)	100 (100)	100 (95)	100 (101)	100 (96)	100 (104)	100 (99)	100 (406)	100 (386)	100 (202)	100 (192)	100 (204)	100 (194)
Currently saving	46 (46)	41 (39)	61 (61)	48 (46)	50 (51)	42 (41)	55 (57)	48 (47)	53 (215)	45 (173)	48 (97)	42 (80)	58 (118)	48 (93)
Used savings in past 6 months	11 (11)	5 (5)	6 (6)	3 (3)	10 (10)	5 (5)	5 (5)	3 (3)	8 (32)	4 (16)	10 (21)	5 (10)	5 (11)	3 (6)
- Affected by illness	*78 (8)*	*20 (1)*	*17 (1)*	*0 (0)*	*80 (8)*	*0 (0)*	*0 (0)*	*67 (2)*	*53 (17)*	*19 (3)*	*76 (16)*	*10 (1)*	*9 (1)*	*33 (2)*
- Affected by death	*46 (5)*	*60 (3)*	*0 (0)*	*0 (0)*	*50 (5)*	*100 (5)*	*0 (0)*	*0 (0)*	*31 (10)*	*50 (8)*	*48 (10)*	*80 (8)*	*0 (0)*	*0 (0)*
B. Sum used relative to current savings and average income														
Average amount used (Rand)	2247	1820	808	617	5172	2460	3020	8933	3037	3128	3710	2140	1814	4775
- No of months worth of savings	*20*	*32*	*4*	*3*	*22*	*61*	*6*	*7*	*15*	*32*	*21*	*46*	*5*	*5*
- As % of average annual household income	*14.8*	*10.9*	*3.7*	*3.6*	*18.7*	*32.9*	*8.9*	*25.1*	*13.1*	*18.8*	*16.7*	*21.5*	*5.8*	*14.4*

(ii) Utilization of savings

Between 40% and 60% of households indicated that they are currently saving, with a larger percentage of households in non-affected households currently saving than was the case in affected households (Table 47). A larger percentage of affected households (11% in wave I and 5% in wave II) have in the six months prior to the interview utilized savings than was the case in non-affected households (5% in wave I and 3% in wave II). When looking at the percentage of households that utilized savings that were affected by morbidity and mortality and the use made of these savings, it is evident that HIV/AIDS plays an important role in causing affected households to utilize savings. In wave I 76% and 48% of affected households that utilized savings were respectively affected by illness or by death, compared to 9% and 0% of non-affected households. By wave II, 10% and 80% of affected households that utilized savings were respectively affected by illness or by death, compared to 33% and 0% of non-affected households. This seems to suggest that the use of savings by affected households during wave II were more likely encouraged by death than by illness compared to wave I, when illness may have played a more important role. In addition, the use of savings by non-affected households in wave II also appears to be linked to illness, although it is not possible to determine whether this illness is necessarily HIV/AIDS-related.

The magnitude of dissaving is considerable, particularly when looking at the amount used relative to the average current level of monthly saving of these households (Table 47 and Figure 17). Affected households in wave I on average utilized twenty-one months of savings, whereas non-affected household only utilized five months of current savings. By wave II, these estimates respectively amount to forty-six and five months in the case of affected and non-affected households.

Figure 17: Savings utilized in past 6 months relative to current monthly savings



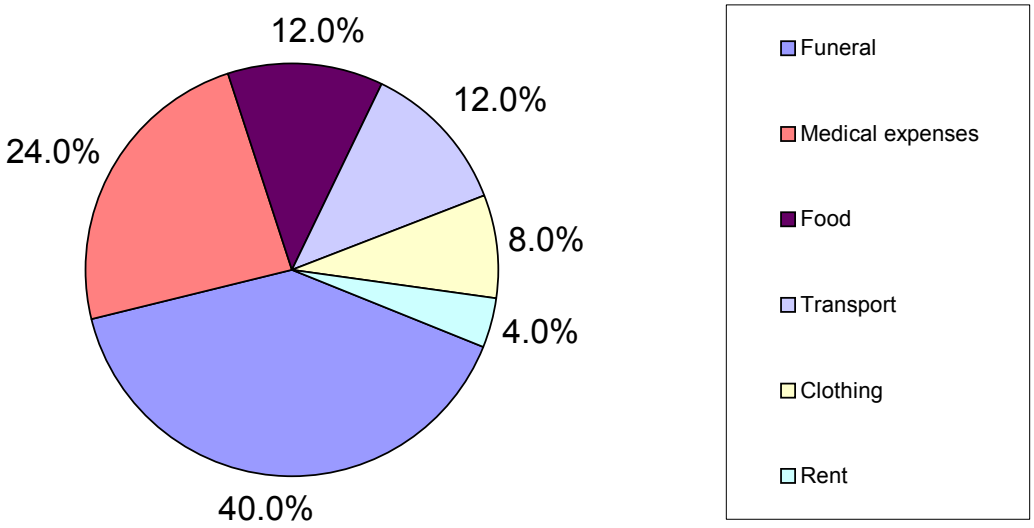
The two purposes for utilizing savings sited most often by affected households were to pay for expenses on funerals (40% of responses in wave I and 42% in wave II) and medical expenses (24% of responses in wave I and 26% in wave II), followed by food, transport and clothing (Table 48 and Figure 18). In non-affected households in turn the most often sited reasons for utilizing savings were to pay for education and the maintenance of assets such as houses and vehicles (both 31% of responses in wave I and 36% in wave II), followed by the repayment of debt and expenses on food and funerals.

Table 48: Role of savings in risk management in waves I and II (continued)

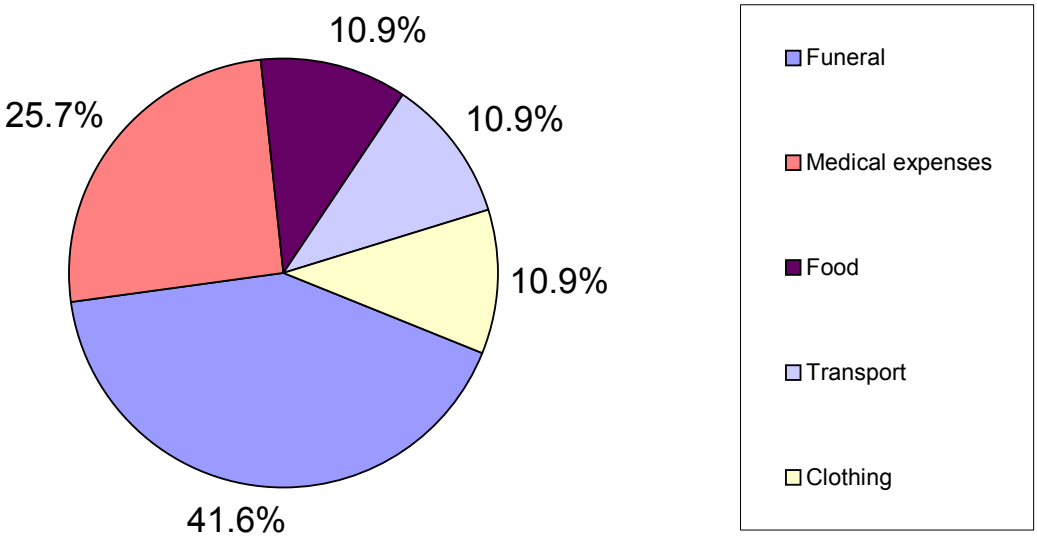
Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Purpose of utilizing savings (multiple response)														
Food	8 (1)	11 (1)	17 (1)	13 (1)	15 (2)	13 (1)	0 (0)	0 (0)	11 (4)	10 (3)	12 (3)	11 (2)	8 (1)	9 (1)
Transport	0 (0)	0 (0)	0 (0)	25 (2)	23 (3)	0 (0)	0 (0)	0 (0)	8 (3)	7 (2)	12 (3)	11 (2)	0 (0)	0 (0)
Education	0 (0)	0 (0)	33 (2)	25 (2)	0 (0)	0 (0)	29 (2)	40 (2)	11 (4)	13 (4)	0 (0)	0 (0)	31 (4)	36 (4)
Medical expenses	33 (4)	33 (3)	0 (0)	0 (0)	15 (2)	25 (2)	0 (0)	0 (0)	16 (6)	17 (5)	24 (6)	26 (5)	0 (0)	0 (0)
Funeral	42 (5)	44 (4)	0 (0)	0 (0)	39 (5)	50 (4)	14 (1)	20 (1)	29 (10)	30 (9)	40 (10)	42 (8)	8 (1)	9 (1)
Clothing	8 (1)	11 (1)	0 (0)	0 (0)	8 (1)	13 (1)	0 (0)	0 (0)	5 (2)	7 (2)	8 (2)	11 (2)	0 (0)	0 (0)
Maintenance of assets	0 (0)	0 (0)	33 (2)	25 (2)	0 (0)	0 (0)	29 (2)	40 (2)	11 (4)	13 (4)	0 (0)	0 (0)	31 (4)	36 (4)
Durables	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (1)	0 (0)	3 (1)	0 (0)	0 (0)	0 (0)	8 (1)	0 (0)
Rent	8 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (1)	0 (0)	4 (1)	0 (0)	0 (0)	0 (0)
Repayment of debt	0 (0)	0 (0)	17 (1)	13 (1)	0 (0)	0 (0)	14 (1)	0 (0)	5 (2)	3 (1)	0 (0)	0 (0)	15 (2)	9 (1)
Total	*100 (12)*	*100 (9)*	*100 (6)*	*100 (8)*	*100 (13)*	*100 (8)*	*100 (7)*	*100 (5)*	*100 (38)*	*100 (30)*	*100 (25)*	*100 (19)*	*100 (13)*	*100 (11)*

Figure 18: Purpose for which affected and non-affected households utilized savings

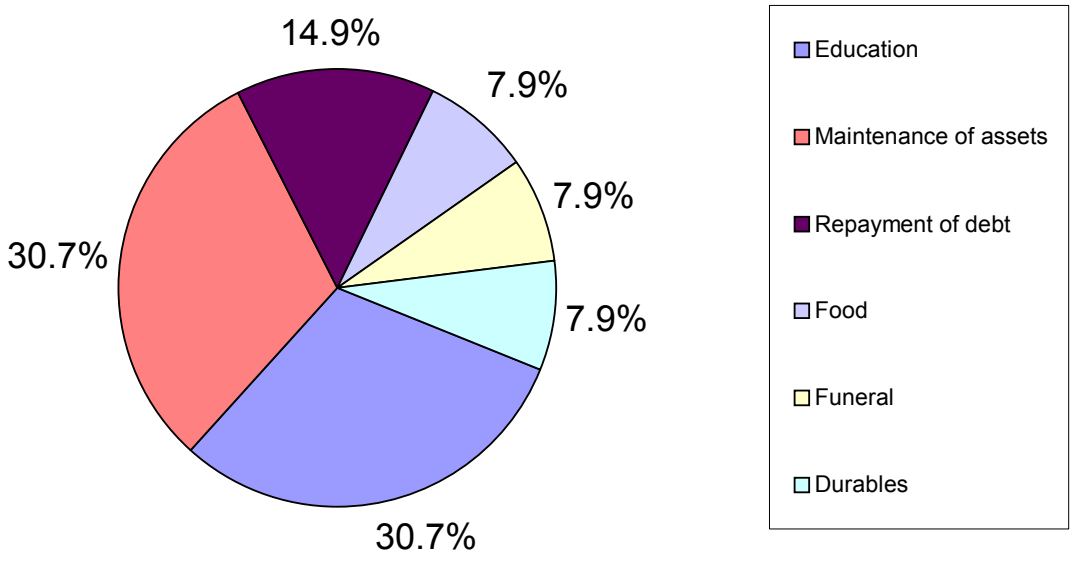
(a) Affected households wave I



(b) Affected households wave II



(c) Non-affected households wave I



(d) Non-affected households wave II

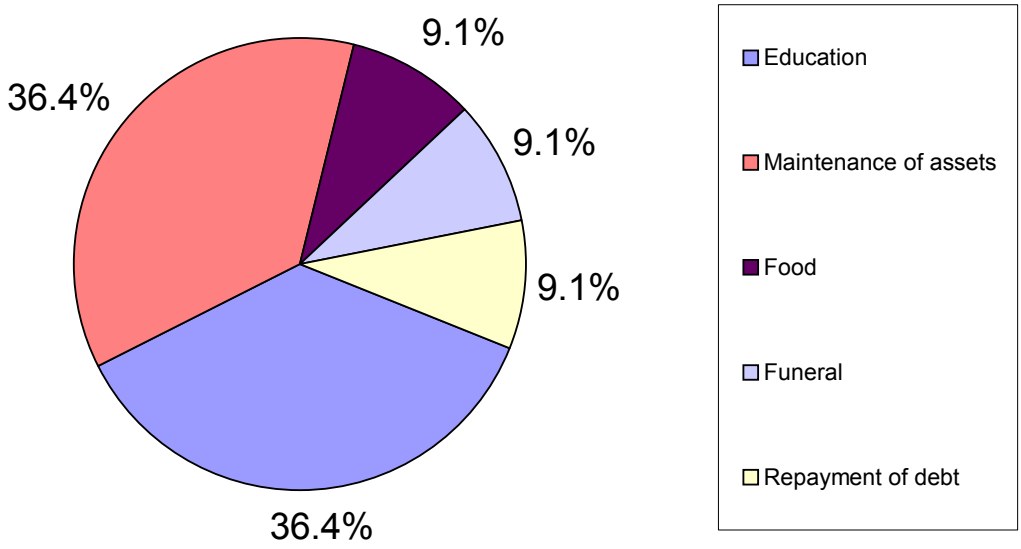


Table 49: Role of assets in risk management in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
A. Incidence														
Total sample	100 (100)	100 (96)	100 (99)	100 (95)	100 (101)	100 (97)	100 (104)	100 (99)	100 (404)	100 (387)	100 (201)	100 (193)	100 (203)	100 (194)
Sold assets in past 12 months (wave I) or past 6 months (wave II)	3 (3)	1 (1)	2 (2)	0 (0)	8 (8)	1 (1)	9 (9)	0 (0)	21 (22)	1 (2)	6 (11)	1 (2)	5 (11)	0 (0)
- Affected by illness	*33 (1)*	*100 (1)*	*0 (0)*	*0 (0)*	*63 (5)*	*100 (1)*	*44 (4)*	*0 (0)*	*46 (10)*	*100 (2)*	*55 (6)*	*100 (2)*	*36 (4)*	*0 (0)*
- Affected by death	*33 (1)*	*0 (0)*	*0 (0)*	*0 (0)*	*25 (2)*	*0 (0)*	*0 (0)*	*0 (0)*	*14 (3)*	*0 (0)*	*27 (3)*	*0 (0)*	*0 (0)*	*0 (0)*
B. Proceeds from sale relative to average income														
Average proceeds from sale (Rand)	1250	300	350	0	1513	700	1380	0	1317	500	1441	500	1193	0
- As % of average annual household income	*8.0*	*3.2*	*4.2*	*0*	*125.8*	*8.3*	*11.8*	*0*	*50.4*	*5.8*	*90.4*	*5.8*	*10.3*	*0*
C. Asset ownership														
Average asset index (max=13)	3.2	3.4	3.8	3.9	2.8	2.8	3.3	3.2	3.3	3.3	3.0	3.1	3.5	3.5

(iii) Sale of assets

Only a very small percentage of households sold assets in the twelve months prior to the first round of interviews (respectively 5.5% and 5.4% in affected and non-affected households). Only two households, both affected ones, sold assets in wave II (Table 49). In wave I 55% and 27% of the affected household that sold an asset were respectively affected by illness and death, compared with only 36% and 0% of non-affected households. The results for wave II paint a similar picture, with 100% of the affected households that sold an asset being affected by illness.

The small number of assets owned by the average household (3.3) explains why only a very few households were able or willing to exercise this financial strategy (Table 49). In fact, households may generally prefer to first borrow money or utilize savings before opting to dispose of their assets. The fact that the value of the proceeds from the sale of assets relative to household income in affected households is much higher than in the case of non-affected households in wave I (90% versus 10 %) may imply that proceeds from asset sales represent a very substantial financial coping mechanism. Yet, the proceeds from asset sales in wave II only represented 5.8% of average annual household income, which again emphasizes that data from more panels are required to run those analyses needed to investigate the nature of financial coping strategies in more detail.

Unlike in the case of new borrowing and the utilization of savings, the reasons these assets were sold for do not outright suggests that HIV/AIDS plays an important role in causing affected households to sell assets (Table 50). Amongst affected households the primary reasons for selling an asset in wave I was to service debt (42.9%), to pay for food (28.6%) or to pay for a funeral (14.3%). In wave II one affected household sold an asset to pay for food, whilst another sold an asset to pay medical expenses. In the case of non-affected households the most often sited reasons for selling an asset in wave I was to pay for food (64.3%) and education (14.3%). However, this may only indicate that affected households that do sell assets actually do so to pay for expenses they can no longer afford since having to pay for medical expenses and funerals from available resources.

Table 50: Role of assets in risk management in waves I and II (continued)

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
A. Purpose of sale of asset (multiple response)														
Food	0 (0)	100 (1)	100 (2)	0 (0)	40 (4)	0 (0)	58 (7)	0 (0)	46 (13)	50 (1)	29 (4)	50 (1)	64 (9)	0 (0)
Education	25 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	17 (2)	0 (0)	11 (3)	0 (0)	7 (1)	0 (0)	14 (2)	0 (0)
Transport	0 (0)	0 (0)	0 (0)	0 (0)	10 (1)	0 (0)	0 (0)	0 (0)	4 (1)	0 (0)	7 (1)	0 (0)	0 (0)	0 (0)
Repayment of debt	75 (3)	0 (0)	0 (0)	0 (0)	30 (3)	0 (0)	8 (1)	0 (0)	25 (7)	0 (0)	43 (6)	0 (0)	7 (1)	0 (0)
Funeral	0 (0)	0 (0)	0 (0)	0 (0)	20 (2)	0 (0)	8 (1)	0 (0)	11 (3)	0 (0)	14 (2)	0 (0)	7 (1)	0 (0)
Replace of asset	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	8 (1)	0 (0)	4 (1)	0 (0)	0 (0)	0 (0)	7 (1)	0 (0)
Medical expenses	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	100 (1)	0 (0)	0 (0)	0 (0)	50 (1)	0 (0)	50 (1)	0 (0)	0 (0)
Total	*100 (4)*	*100 (1)*	*100 (2)*	*100 (0)*	*100 (10)*	*100 (1)*	*100 (12)*	*100 (0)*	*100 (28)*	*100 (2)*	*100 (14)*	*100 (2)*	*100 (14)*	*100 (0)*
B. Type of assets sold (multiple response)														
Household appliances	75 (3)	100 (1)	0 (0)	0 (0)	44 (4)	0 (0)	60 (6)	0 (0)	52 (13)	50 (1)	54 (7)	50 (1)	50 (6)	0 (0)
Vehicles	25 (1)	0 (0)	50 (1)	0 (0)	0 (0)	0 (0)	30 (3)	0 (0)	20 (5)	0 (0)	8 (1)	0 (0)	33 (4)	0 (0)
Livestock	0 (0)	0 (0)	0 (0)	0 (0)	11 (1)	0 (0)	0 (0)	0 (0)	4 (1)	0 (0)	8 (1)	0 (0)	0 (0)	0 (0)
Furniture	0 (0)	0 (0)	50 (1)	0 (0)	33 (3)	100 (1)	0 (0)	0 (0)	16 (4)	50 (1)	23 (3)	50 (1)	8 (1)	0 (0)
Other	0 (0)	0 (0)	0 (0)	0 (0)	11 (1)	0 (0)	10 (1)	0 (0)	8 (2)	0 (0)	8 (1)	0 (0)	8 (1)	0 (0)
Total	*100 (4)*	*100 (1)*	*100 (2)*	*100 (0)*	*100 (9)*	*100 (1)*	*100 (10)*	*100 (0)*	*100 (25)*	*100 (2)*	*100 (13)*	*100 (2)*	*100 (12)*	*100 (0)*

Households primarily sold household appliances, which represent more than 50% of the type of assets sold in wave I and 50% of assets sold in wave II (Table 50). The specific type of appliances sold by households in wave I consisted of stoves (5), television sets (3), refrigerators (2), radios or sound systems (2) and a video machine. One affected household in Qwaqwa sold some cattle in wave I. In wave I three affected households sold furniture compared to one non-affected household, while three non-affected households sold vehicles compared to one affected household. During wave II, one affected household sold furniture. The latter differences between the type of assets sold by affected and non-affected households is understandable insofar as non-affected households have been shown elsewhere to be relatively more affluent than affected households, implying that they may own more expensive type of assets. Evident as well from the nature of assets sold by households is that these assets in most cases (with the exception of the sale of cattle by one household) are of a non-productive nature, i.e. these are not assets the household require to in the short term sustain their livelihoods. However, the loss of any asset means that the wealth of that particular household is depleted, in the process making it more difficult to in the longer term cope with the impact of the epidemic. The sale of household appliances and other assets may of course also in the longer run have implications for household labor, with households requiring more labor and/or time to prepare meals, which may in turn have implications for the supply of household labor for other activities and the schooling of children.

(iv) Regression analyses

It can be assumed that non-poor households will be better able to cope with the impact of HIV/AIDS. HIV/AIDS may also cause households to move into and out of poverty as they are affected by illness and death resulting from the epidemic. Hence, it is important to attempt to arrive at a better understanding of the most important predictors of the most common outcomes of financial crises at the household level, i.e. the need to borrow money, to utilize savings and/or to sell assets. Multiple logistic regression analysis was used for this purpose, with the outcome variables indicating whether a household had employed any one or either one of these financial coping strategies. The analysis was

performed across the entire sample of households. Statistically meaningful models could only be estimated in the case of two of the four outcome variables, namely whether or not households had to utilize some of their savings in the six months prior to the interview (Table 51) and whether or not households employed any of the three financial coping strategies of borrowing, utilization of savings or sale of assets (Table 52). Separate cross-sectional models were estimated for the data from wave I and wave II, with a view to determine the extent to which the explanations for using these financial coping strategies may have changed over time. The results point to the following as important predictors of differences in the ways that households deal with the economic impact of illness and death by exercising different financial coping strategies.

Table 51: Predictors of having utilized savings: Logistical regression models

Explanatory variables and summary statistics	**Wave I**		**Wave II**	
	Odds ratio	**P**	**Odds ratio**	**P**
Expenditure (by deciles)	**2.170**	**<0.001**	**1.913**	**<0.001**
Urban versus rural location	0.998	0.997	1.030	0.965
Affected versus non-affected status	0.664	0.424	0.969	0.965
Access to medical aid	**0.181**	**0.018**	**0.097**	**0.076**
Male versus female head of household	0.991	0.985	1.146	0.837
Age of head of household (by deciles)	0.731	0.115	1.201	0.102
Household size	1.042	0.711	0.805	0.124
Dependency ratio	0.983	0.143	**1.034**	**0.028**
Number of employed household members	1.118	0.668	0.969	0.948
Number of persons that are ill	1.132	0.627	1.096	0.860
Number of persons that have died	**4.813**	**0.003**	**32.047**	**<0.001**
Household shelters an orphan	0.707	0.548	0.666	0.550
Sample (n)		*403*		*386*
LR chi2 (P)		*<0.001*		*<0.001*
Pseudo R^2		*0.212*		*0.347*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level.

According to the results reported in Table 51, households in wave I were more likely to have utilized savings when having experienced a larger number of recent deaths. In households where one or more persons had access to medical aid it was less likely that

savings would be utilized. Households were also more likely to have utilized savings when expenditure was higher, implying that upward pressure on household expenditure may force households to utilize current savings to as to pay for medical and funeral expenses in particular (see evidence on reasons for using savings presented elsewhere). The analysis for wave II saw the same three determinants featuring as significant factors in explaining the likelihood of households having utilized savings in the six months preceding the second interview. In wave II, the utilization of savings was also more likely where the dependency ratio was higher, which makes sense insofar as households with a larger number of dependents may find it more difficult to cope with the financial pressures related to illness and/or death, thus causing them to utilize their savings.

Table 52: Predictors of having utilized any financial coping strategy: Logistical regression models

Explanatory variables and summary statistics	**Wave I**		**Wave II**	
	Odds ratio	**P**	**Odds ratio**	**P**
Expenditure (by deciles)	**1.222**	**0.040**	1.032	0.575
Urban versus rural location	**2.582**	**<0.001**	**1.710**	**0.059**
Affected versus non-affected status	0.821	0.462	1.374	0.301
Access to medical aid	1.030	0.931	0.480	0.165
Male versus female head of household	0.770	0.283	1.120	0.693
Age of head of household (by deciles)	**0.803**	**0.013**	1.070	0.176
Household size	**1.155**	**0.008**	0.906	0.154
Dependency ratio	0.999	0.914	1.005	0.417
Number of employed household members	0.874	0.383	1.186	0.273
Number of persons that are ill	0.968	0.834	**1.444**	**0.099**
Number of persons that have died	1.714	0.133	**4.602**	**<0.001**
Household shelters an orphan	1.564	0.108	0.785	0.455
Sample (n)		*403*		*387*
LR chi2 (P)		*<0.001*		*0.009*
Pseudo R^2		*0.078*		*0.068*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level.

Any financial coping strategy (i.e. borrowing, utilize savings and the sale of assets) was more likely to have been exercised during wave I in households where expenditure on

average was higher, in households that live in rural rather than in urban areas, and in households headed by younger persons (Table 52). The fact that coping financially in one or more of these ways was more likely in rural areas is understandably given that rural areas are generally considerably poorer than urban areas, as is evident from the differences in expenditure and income levels reported elsewhere. The outcome was also more likely as household size increases, which makes sense insofar as a larger household have relatively more expenditure needs than a smaller household, thus making it necessary to borrow, utilize savings or sell assets if households cannot cope with pressures on household finances. What is particularly interesting in this case, was that the results for wave II tell a quite different story. Urban/rural residence again featured as a strong predictor of the outcome, with households living in rural areas again being more likely to have exercised any of the three financial coping strategies. This time, though, the number of ill persons and the number of persons that had died feature as significant determinants of the outcome. Households were more likely to have exercised any of the three financial coping strategies where a larger number of persons in the household was ill and where a larger number of recent deaths had occurred in the specific household. The evidence presented in Tables 51 and 52 seems to suggest that the utilization of savings is perhaps more closely related to the impact of mortality than are the other financial coping strategies, although the model for wave II suggests that both illness and death play a role in explaining financial coping strategies.

The panel design of this household impact study also allows one to perform analyses that look at the relationship between financial coping and changes over time in selected variables, thus allowing one to determine how the data from wave I and II can in combination explain these outcomes. The results of these regressions are reported in Table 53. Certain variables on household characteristics were mainly included as recorded in wave I, e.g. urban versus rural location, affected and non-affected status, and age and gender of the head of the households. Other variables, such as the dependent variable, now distinguishes between households that in this case employed the particular financial coping strategy in both waves (value=2), households that employed the strategy in one wave only (value=1), and households that employed the strategy in neither wave

(value=0). The following variables based on changes between wave I and II were also included in the analyses:

- change in adult equivalent expenditure between wave I and II
- access to medical aid in wave I and II, i.e. whether households had access to medical aid in both waves, only in one, or in neither wave
- change in household size between wave I and II
- change in dependency ratio between wave I and II
- incidence of morbidity in wave I and II, i.e. whether households had experienced illness in both waves, only in one, or in neither wave
- incidence of mortality in wave I and II, i.e. whether households had experienced a recent death in both waves, only in one, or in neither wave
- change in number of years of schooling between wave I and II
- change in number of employed household members between wave I and II
- sheltering of orphans by household, i.e. whether households had sheltered an orphan in both waves, only in one, or in neither waves
- household moved to a new residence between wave I and II
- change in gender of the head of the household between wave I and II, either male to female or male to female
- change in age of the head of the household between wave I and II

Table 53: Predictors of household having utilized a financial coping strategy between waves I and II: Multiple regression models

Explanatory variables and summary statistics	Household utilized savings		Household utilized any financial coping mechanism	
	Coefficient	P	Coefficient	P
Δ in adult equivalent household expenditure (Rand) between waves I and II	**-0.000**	**0.065**	-0.000	0.109
Urban versus rural location in wave I	0.016	0.648	**0.227**	**0.001**
Affected versus non-affected status	0.032	0.471	0.111	0.196
Access to medical aid in waves I and II	-0.016	0.579	-0.003	0.955
Male versus female head of household in wave I	-0.014	0.686	-0.043	0.542
Age of head of household (by deciles) in wave I	-0.002	0.821	-0.025	0.301
Δ in household size between wave I and II	-0.038	0.107	**-0.108**	**0.018**
Household size in wave I	-0.000	0.947	0.016	0.366
Affected by morbidity in waves I and II	0.024	0.358	0.077	0.126
Affected by mortality in waves I and II	**0.245**	**<0.001**	**0.300**	**0.001**
Δ Change in years of schooling between waves I and II	0.008	0.491	0.002	0.925
Δ Change in number of employed household members between waves I and II	-0.006	0.768	0.022	0.586
Household sheltered orphan in waves I and II	-0.017	0.454	0.043	0.337
Household did not live at same residence during waves I and II	-0.180	0.162	-0.239	0.329
Δ in gender of household head between waves I and II	-0.069	0.265	-0.168	0.157
Δ in dependency ratio between waves I and II	0.001	0.129	-0.000	0.831
Δ in age of household head between waves I and II	0.004	0.154	**0.010**	**0.067**
Constant	0.005	0.979	-0.162	0.681
Sample (n)	*383*		*376*	
F value (P)	*2.89 (<0.001)*		*2.99 (<0.001)*	
R^2	*0.118*		*0.124*	
Adjusted R^2	*0.077*		*0.082*	

Note: Coefficients and P values in bold are statistically significant at least at a 0.10 level.

The results point to the following as important predictors of differences in the ways that households deal with the economic impact of illness and death by exercising different financial coping strategies (Table 53). A drop in adult equivalent expenditure over time and being affected by mortality in a larger number of waves made it more likely that households would have utilized some of their savings in more than one period. As far as all three financial coping strategies are concerned, households were more likely to have exercised any one strategy in more than one period if the household resided in a rural area, if the household had become smaller over the period, if the household was affected by mortality in more than one wave, and if the household had experienced a change in the

gender of the head of the household. The latter makes sense insofar as a change in the headship of the household may be indicative of a general insecurity within the household, which could necessitate the use of any of the financial coping strategies to cope with such situation. A decline in household size may mean that there are fewer members to contribute to household income and to perform general household activities, which similarly can necessitate the household to either borrow money, use savings or sell assets to cope with these pressures. As in the case of the cross-sectional analyses for wave I and for II, mortality seems to play an important role in explaining why some households are more likely than others to have used some of their savings or to have employed any financial coping mechanism. Evidently, more analyses are required to determine the exact nature of the relationship between changes in expenditure, the incidence of death and other explanatory variables.

DIRECT, INDIRECT AND TOTAL COST OF MORBIDITY AND MORTALITY

In order to determine the economic impact of illness and death on households it is necessary to include both the direct and indirect costs of morbidity and mortality. *Direct costs* include the cost of medical treatment and transport expenses required to reach health care facilities so as to receive treatment. In the case of deaths, funeral costs represent another direct cost. In the case of illness, *indirect costs* include the loss of income to the ill person and to those persons caring for the ill, including both direct care and time spent accompanying the ill person on visits to health care facilities. The income loss to the ill person was determined in monetary terms, i.e. respondents were asked how much money the person lost by not being able to work in the past month. In terms of caring, respondents were asked to indicate the number of working days the person caring for the ill has lost in the thirty days before the interview in terms of caring for the ill and in terms of accompanying the ill person to a health care facility. These losses in income were estimated based on the number of days of work lost by those caring for the ill, employing the specific household's average monthly employment earnings divided by thirty as a proxy of the daily loss of income. When it comes to mortality, indirect costs refer to the income loss to the persons caring for the deceased individual in the month

prior to their death, as well as the income loss to the household resulting from the death of the specific person. The income loss to the person caring for the ill was estimated in the same manner as for morbidity (see above). The loss in income to the household resulting from the death was directly estimated by asking respondents to indicate whether the deceased was employed before their death and how much income the deceased received prior to their death.

The cost of morbidity and mortality was determined by adding together the average values of the various components of direct and indirect costs and NOT by calculating the average total cost across the total number of cases. All costs reflect the average cost to households in the month preceding the interview (morbidity) or in the month preceding the death (mortality), with the exception of funeral costs, which is reported as a once-off cost to the household at the time of death. The averages for each cost component were calculated only across those cases where costs exceeded zero, i.e. where respondents were able to give an indication of the magnitude of costs and/or working days lost. The reason for doing so was to arrive at an estimate of the most likely economic impact of illness and death on households, including out-of-pocket expenditure and income losses. If total costs had been averaged across all cases, the magnitude of the impact would have been underestimated insofar as a relatively large number of persons were not able to report the cost of medical treatment, either because treatment was free or because expenses were paid for via medical aid and respondents did not know the actual costs. In addition, a relatively large number of households incurred no income loss because those persons caring for the ill or deceased were in fact unemployed. However, where income losses did in fact occur the averages gives an indication of the average burden on households in this regard and need to be included in estimates of the cost of illness and death. In this sense, the estimates reported here presents 'worst case' estimates of the cost of illness or death.

In order to determine the magnitude of these costs, the cost of morbidity and mortality is expressed as a percentage of average monthly household income and expenditure. Furthermore, the composition of the cost of morbidity and mortality indicates the main

sources of economic impact. Evident from the results discussed below is that the cost of morbidity and mortality presents a relatively large economic burden.

(i) Morbidity

The direct cost of morbidity to affected households in wave I and in wave II respectively averaged R257 and R276 per ill person (Table 54). The direct cost to non-affected households respectively amounted to R350 (wave I) and R171 (wave II) per ill person. These relatively low direct costs (i.e. the cost of medical treatment and related transport) may be attributed to the fact that most ill persons visit government clinics and hospitals where services are heavily subsidized, while most persons may also reach health care facilities on foot rather than by taxi or bus, implying relatively low transport costs. The indirect cost of illness to affected households amounted to R1318 per person in wave II, with no non-affected household experiencing any indirect costs related to morbidity. In wave II, indirect costs amounted to respectively R368 and R150 per ill person in the case of affected and non-affected households. The total cost of illness to affected households in wave I was 4.5 higher than the cost incurred by non-affected households, with the respective estimates of total cost amounting to R1575 and R350 per ill person. In wave II, this differential amounted to 2.0, with the respective estimates of total cost amounting to R644 and R321 per ill person. This does not mean that the cost of morbidity is declining, but rather that those persons that were ill in the second round of interviews and that those that cared for them reported little loss in income resulting from morbidity, less than was the case in wave I. Given the small numbers over which these estimates of income loss were calculated ($n<10$), the considerable variability in the estimates is also perhaps not surprising. Yet, the results do perhaps suggest that indirect costs may vary substantially across individual cases of illness, whereas the direct costs do not exhibit considerable degrees of variance. After subsequent rounds of interviews, these data on the cost of illness can be pooled across the six panels to arrive at a more reliable estimate of the direct and indirect cost of morbidity in affected and non-affected households.

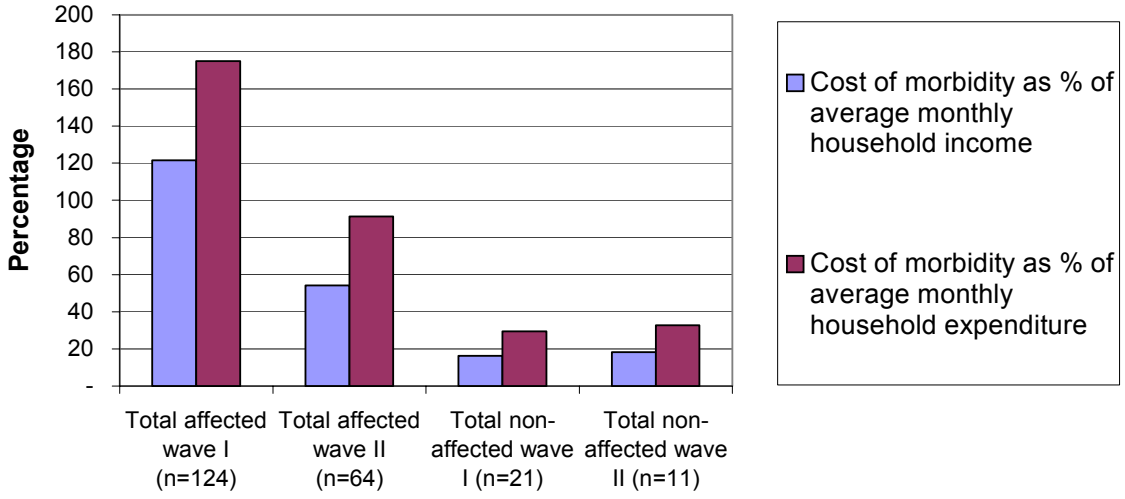
Table 54: Cost of morbidity to households reporting income loss or expenditure related to illness in wave I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
Number of households reporting expenditure or income loss related to illness	54	22	13	8	70	42	8	3	145	75	124	64	21	11
A. Average cost														
Total direct cost	137	410	492	175	344	232	160	167	272	261	257	276	350	171
- Medical treatment	*110 (42)*	*382 (11)*	*455 (11)*	*150 (4)*	*306 (59)*	*180 (32)*	*128 (8)*	*142 (3)*	*239 (120)*	*220 (50)*	*224 (101)*	*232 (43)*	*317 (19)*	*146 (7)*
- Travel expenses	*27 (42)*	*28 (19)*	*34 (11)*	*25 (7)*	*38 (57)*	*52 (35)*	*32 (7)*	*25 (3)*	*33 (117)*	*41 (64)*	*33 (99)*	*44 (54)*	*33 (18)*	*25 (10)*
Total indirect cost	920	625	0	0	1227	240	0	150	1338	337	1318	368	0	150
- Income loss to carer (care)	*0*	*0*	*0*	*0*	*135 (2)*	*0*	*0*	*0*	*135 (2)*	*0*	*135 (2)*	*0*	*0*	*0*
- Income loss to carer (visit to health facilities)	*0*	*0*	*0*	*0*	*615 (2)*	*0*	*0*	*0*	*615 (2)*	*0*	*615 (2)*	*0*	*0*	*0*
- Income loss to ill person	*920 (2)*	*625 (2)*	*0*	*0*	*477 (6)*	*240 (4)*	*0*	*150 (1)*	*588 (8)*	*337 (7)*	*588 (8)*	*368 (6)*	*0*	*150 (1)*
Total cost	1057	1035	492	175	1571	472	160	317	1610	598	1575	644	350	321
B. Total cost relative to average income and expenditure														
Average total monthly household income (Rand)	1630	1509	2692	2079	948	883	1596	1438	1727	1479	1296	1186	2147	1764
- as % average monthly income	*64.8*	*68.6*	*18.3*	*8.4*	*165.7*	*53.5*	*10.0*	*22.0*	*93.2*	*40.4*	*121.5*	*54.3*	*16.3*	*18.2*
Average monthly household expenditure (Rand)	1178	931	1414	1174	627	479	968	802	1045	844	900	704	1187	984
- as % average monthly expenditure	*89.7*	*111.2*	*34.8*	*14.9*	*250.6*	*98.5*	*16.5*	*39.5*	*154.1*	*70.9*	*175.0*	*91.5*	*29.5*	*32.6*

Note: Average costs were calculated only across households that in fact incurred direct and indirect costs, i.e. these costs exceeded zero. Totals costs were calculated by adding together the components of direct, indirect and total costs. The respective sample sizes are reported in brackets.

The burden of illness on affected households in wave I amounted to 1.2 times average monthly household income and 1.75 times average monthly household expenditure, while the estimates in wave II respectively amounted to 0.5 and 0.9 times average monthly household income and expenditure (Table 54 and Figure 19). This burden is considerable, given that the burden on non-affected households represent only between 16.3% and 32.6% of average monthly household income or expenditure. Hence, illness does displace a considerable amount of resources, particularly in affected households.

Figure 19: Cost of morbidity as % of monthly household income and expenditure



The composition of the total cost of illness differs between affected and of non-affected households (Table 55). Indirect costs in wave I on average amounted to approximately 80% of the total cost on affected households, whereas indirect costs in wave II made up between 50% and 60% of the total cost of illness to affected households. In the case of non-affected households, direct costs represent a larger share of total cost than does indirect costs, although direct and indirect costs in wave II made up almost equal shares of the total cost of morbidity to non-affected households in Qwaqwa. This suggests that the economic burden of illness on affected households is more pronounced than is the case in non-affected households primarily because of the loss of income to the ill person rather than because of significant differences in the direct costs or in the loss of income to the caregiver.

Table 55: Cost of morbidity to households reporting income loss or expenditure related to illness in wave I and II (continued)

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
Number of households reporting expenditure or income loss related to illness	54	22	13	8	70	42	8	3	145	75	124	64	21	11
Composition of total cost														
Medical treatment	10.4	36.9	92.5	85.7	19.5	38.1	80.0	44.8	14.8	36.8	14.2	36.0	90.6	45.5
Travel expenses	2.6	2.7	6.9	14.3	2.4	11.0	20.0	7.9	2.0	6.9	2.1	6.8	9.4	7.8
Income loss to carer	0.0	0.0	0.0	0.0	47.7	0.0	0.0	0.0	46.6	0.0	47.6	0.0	0.0	0.0
Income loss to ill person	87.0	60.4	0.0	0.0	30.4	50.8	0.0	47.3	36.5	56.4	39.0	57.1	0.0	46.7
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Total direct cost	13.0	39.6	100.0	100.0	21.9	49.2	100.0	52.7	16.9	43.6	16.3	42.9	100.0	53.3
Total indirect cost	87.0	60.4	0.0	0.0	78.1	50.8	0.0	47.3	83.1	56.4	83.7	57.1	0.0	46.7
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Note: Average costs were calculated only across households that in fact incurred direct and indirect costs, i.e. these costs exceeded zero. Totals costs were calculated by adding together the components of direct, indirect and total costs. The respective sample sizes are reported in brackets.

The results look quite different when the total number of households that recorded expenditure due to illness is employed as denominator, rather than adding up the different components of the cost of morbidity. The total cost of morbidity to affected households as opposed to non-affected households then respectively adds up to R259 and R315 in wave I and to respectively R228 and R129 in wave II. This represents only between 7% and 32% of monthly household income or expenditure, which in relative terms represent a significantly lower burden on households than does the estimates presented above. Hence, the cost of morbidity to households are relatively low where unemployment levels are very high and household members are primarily cared for by family members with no direct loss of income. If, however, one was to put an economic value on the time of household labor utilized for this purpose rather than for alternative and perhaps more productive activities, estimates of the cost of morbidity would be higher.

(ii) Mortality

The cost of mortality was only calculated for affected households, because nearly 90% (69/78 deaths) of deaths occurring in wave I and in wave II occurred in affected households (Table 56). The average direct cost of mortality to affected households respectively amounted to R4519 (wave I) and R4088 (wave II) per death (Table 56). The average direct cost per death in Welkom (R5018) in wave I exceeded that in Qwaqwa (R4223), whereas the average direct cost per death in Qwaqwa (R4324) in wave II exceeded that in Welkom (R3928). As was the case with the direct cost of morbidity, treatment and transport costs were generally relatively low, averaging R183 and R48 respectively in wave I and R156 and R40 in wave II. The largest part of the cost of a death is made up of funeral costs, which in affected households averaged R4288 (wave I) and R3892 (wave II). The indirect cost of a death to affected households amounted to R1434 (wave I) and R962 (wave II), the largest share of which consists of the income loss to the household resulting from the death (R1302 in wave I and R962 in wave II). The total cost to households in Welkom and Qwaqwa of one death respectively amounted to R6228 and R5679 in wave I and R4463 and R5571 in wave II. It appears therefore as if funeral costs in Welkom have decreased substantially between wave I and wave II of

the study, resulting from both a decline in funeral costs and a decline in the loss of income to the deceased, while costs in Qwaqwa have remained more or less the same over the period. Obviously, data from more panels are required to determine whether there actually is a downward trend in funeral costs. Furthermore, certain additional questions to be put to households during subsequent waves will be used in combination with focus groups with people in the larger community to attempt to determine the composition of funeral costs and to explain the reasons for these changes over time in funeral costs.

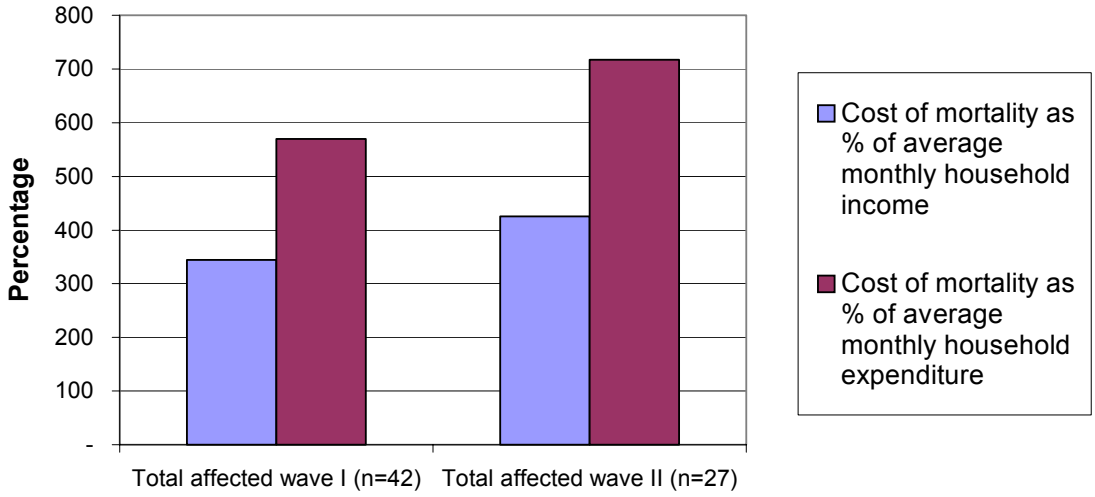
It is evident from Figure 20 that a death puts a much greater financial burden on a household than does illness. The burden on affected households in wave I amounted to 3.4 times average monthly household income and 5.7 times average monthly household expenditure. The wave II estimates exceeds the wave I estimates, with the cost of a death respectively representing 4.3 and 7.2 times average monthly household income and expenditure. In the case of Welkom, these two ratios were respectively 3.8 and 5.2 (wave I) and 3.0 and 4.8 (wave II). In Qwaqwa the burden of a death amounted to respectively 6.0 and 9.1 (wave I) and 6.3 and 11.6 (wave II) times average household income and expenditure. Hence, a death places a considerably larger burden on poor, rural households than on households living in urban areas, although the burden in both cases is relatively large.

Table 56: Cost of mortality to households reporting income loss or expenditure related to death in wave I and II

Indicator	Welkom Affected		QwaQwa Affected		Total Affected	
	I	II	I	II	I	II
Number of households reporting expenditure or income loss related to death	16	14	26	13	42	27
A. Average cost						
Total direct cost	5018	3928	4223	4324	4519	4088
- Medical treatment	*218 (10)*	*260 (5)*	*164 (19)*	*82 (7)*	*183 (29)*	*156 (12)*
- Travel expenses	*33 (13)*	*35 (12)*	*59 (19)*	*50 (6)*	*48 (32)*	*40 (18)*
- Funeral expenses	*4767 (15)*	*3633 (15)*	*4000 (25)*	*4192 (13)*	*4288 (40)*	*3892 (28)*
Total indirect cost	1210	535	1456	*1247*	1434	962
- Income loss to carer	*0*	*0*	*132 (3)*	*0*	*132 (3)*	*0*
- Income loss to deceased	*1270 (4)*	*535 (2)*	*1324 (6)*	*1247 (3)*	*1302 (10)*	*962 (5)*
Total cost	6228	4463	5679	5571	5953	5050
B. Total cost relative to average income and expenditure						
Average monthly household income (Rand)	1630	1509	948	883	1296	1186
- as % average monthly income	*382.0*	*295.8*	*599.1*	*630.9*	*344.7*	*425.8*
Average monthly household expenditure (Rand)	1178	931	627	479	900	704
- as % average monthly expenditure	*528.7*	*479.4*	*905.7*	*1163.0*	*569.7*	*717.3*

Note: Average costs were calculated only across households that in fact incurred direct and indirect costs, i.e. these costs exceeded zero. Totals costs were calculated by adding together the components of direct, indirect and total costs. The respective sample sizes are reported in brackets.

Figure 20: Cost of mortality as % of monthly household income and expenditure



As in the case of the estimates of the cost of morbidity, the results look different when the total number of households that recorded expenditure due to a recent death is employed as denominator. The total cost of morbidity to affected households then amounts to R4563 (wave I) and R4310 (wave II). In Welkom and Qwaqwa the respective estimates add up to R4949 and R4325 (wave I) and R4091 and R4547 (wave II). This represents between 2.7 and 9.5 times average monthly household income or expenditure. Unlike with the estimates of the cost of morbidity, the cost of a death remains relatively high even where unemployment levels are very high and household members are primarily cared for by relatives with no direct loss of income. This can be attributed to the fact the funeral costs are very high and represent the largest share of the total cost of mortality (i.e. 70% to 80%). Again, these estimates would be higher if one was to put an economic value on the time of household labor employed in caring for ill persons before their death.

This burden is considerable, implying that an ever-increasing amount of resources will be shifted to alternative types of expenditure as the AIDS epidemic takes its toll in the next ten years. The analysis of the panel data to be gathered during the subsequent phases of this longitudinal study it is hoped will contribute to a greater understanding of how household expenditure patterns changes over the course of time preceding and following illness and death in affected and non-affected households.

Table 57: Cost of mortality to households reporting income loss or expenditure related to death in wave I and II (continued)

Indicator	Welkom Affected		QwaQwa Affected		Total Affected	
	I	II	I	II	I	II
Number of households reporting expenditure or income loss related to death	16	14	26	13	42	27
Composition of total cost						
Medical treatment	3.5	5.8	2.9	1.5	3.1	3.1
Travel expenses	0.5	0.8	1.0	0.9	0.8	0.8
Funeral expenses	76.5	81.4	70.4	75.2	72.0	77.1
Income loss to carer	0.0	0.0	2.3	0.0	2.2	0.0
Income loss to deceased	20.4	12.0	23.3	22.4	21.9	19.0
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Total direct cost	80.6	88.0	74.4	77.6	75.9	81.0
Total indirect cost	19.4	12.0	25.6	22.4	24.1	19.0
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Note: Average costs were calculated only across households that in fact incurred direct and indirect costs, i.e. these costs exceeded zero. Totals costs were calculated by adding together the components of direct, indirect and total costs. The respective sample sizes are reported in brackets.

Unlike in the case of illness, where the majority of the cost to households consisted of indirect costs, the cost of a death consists largely of direct costs (75.9% wave I and 81.0% wave II), because of the high burden that funeral costs place on the affected household (Table 57). In fact, funeral costs represent between 70% and 80% of the total burden, with the income loss to the deceased making up approximately 20%. These two cost components (i.e. funeral costs and loss of income to the deceased) therefore represent the bulk of the burden of mortality on affected households. This means that expenditure on funerals will increase dramatically as the AIDS epidemic takes its toll, leading to increasing growth in this sector but also putting pressure on the insurance industry in terms of coping with increased claims. Households affected by AIDS deaths may also temporarily be moved into poverty where provision is not made for funeral costs via funeral or burial policies, either through conventional financial insurance or other community-based support mechanisms aimed at coping with funeral expenses.

HIV/AIDS AND CHILDREN

The AIDS epidemic stands to affect children in a variety of ways. Two specific issues related to the impact of HIV/AIDS on children were explored in more detail with the aid of this data set. *Firstly*, the data was used to look at the extent to which the school enrollment of children in affected and non-affected households may differ. A distinction was made between children aged 7-13 (primary school), aged 14-18 (secondary school) and aged 7-18 years (all children of school going aged). Although the data set also makes it possible to explore the extent to which children may be behind in terms of their schooling, i.e. not having completed a grade commensurate with their current age, this specific aspect of enrollment was not investigated. Logistical regression analysis was employed in an attempt to identify those factors that explain why some children are attending school while others are not.

The *second* issue explored here is that of orphans. The data was used to look at the percentage of children that have lost a mother, mother or father, or both parents, which should give an indication of the extent of the problem, not only in affected households

but also in so-called non-affected households, who may also provide shelter to orphaned children. In addition, the enrollment of orphans was compared across affected and non-affected households, while the characteristics of those households sheltering orphans were looked into. As a result of very few orphans not attending school, logistical regression analysis could not be employed in attempting to determine the predictors of school attendance amongst orphaned children. As in the case of other results presented in this report, it is envisaged that the further analysis of the panel data to be generated by subsequent rounds of interviews will allow the researchers to explore some of these questions in greater detail.

(i) School enrollment

A relatively small percentage of children aged 7-13 that belonged to the sample population in wave I and in wave II were not attending school at the time of the interview (1.4%), whereas 6.6% (wave I) and 10.4% (wave II) of children aged 14-18 years were not attending schooling (Table 58 and Figure 21). In total 3.9% (wave I) and 5.1% (wave II) of children of school-going age included in the sample in wave I and in wave II was not attending school at the time of the interview.

An even smaller proportion of children did not attend school in both waves (Table 58). This suggests that younger children may be taken from school for relative short periods rather than not attending school for a longer period of time, whereas older children may be taken from school for longer periods. Not one child aged 7-13 years failed to attend school in both waves, compared to 4.7% of children aged 14-18 not attending school in both waves. In total, 1.9% only of children did not attend school in both waves. The comparison across the data for wave I and wave II also suggests that non-attendance may be on the increase among older children, although data from subsequent rounds of interviews are required to substantiate this claim about an upward trend in non-attendance among older children.

Table 58: Changes between waves I and II in the percentage of children of school-going age not attending school

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
A. Children aged 7-13 years not attending school														
Total sample	81	100.0	60	100.0	57	100.0	51	100.0	249	100.0	138	100.0	111	100.0
Wave I	1	1.2	1	1.7	1	1.8	1	2.0	4	1.6	2	1.4	2	1.8
Wave II	2	2.5	0	0.0	0	0.0	0	0.0	2	0.8	2	1.4	0	0.0
Waves I and II	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
P (Fischer's Exact test)		*1.000*										*1.000*		
B. Children aged 14-18 years not attending school														
Total sample	51	100.0	47	100.0	55	100.0	40	100.0	193	100.0	106	100.0	87	100.0
Wave I	1	2.0	4	8.5	6	10.9	1	2.5	12	6.2	7	6.6	5	5.7
Wave II	3	5.9	2	4.3	8	14.5	1	2.5	14	7.3	11	10.4	3	3.4
Waves I and II	1	2.0	1	2.1	4	7.3	1	2.5	7	3.6	5	4.7	2	2.3
P (Fischer's Exact test)		*0.059*		*1.000*		*0.003*		*0.025*				*<0.001*		*0.008*
C. Children aged 7-18 years not attending school														
Total sample	137	100.0	113	100.0	120	100.0	96	100.0	466	100.0	257	100.0	209	100.0
Wave I	3	2.2	5	4.4	7	5.8	2	2.1	17	3.6	10	3.9	7	3.3
Wave II	5	3.6	2	1.8	8	6.7	1	1.0	16	3.4	13	5.1	3	1.4
Waves I and II	1	0.7	1	0.9	4	3.3	1	1.0	7	1.5	5	1.9	2	1.0
P (Fischer's Exact test)		*1.000*		*1.000*		*<0.001*		*0.021*				*1.000*		*0.003*

The higher non-attendance amongst older children makes sense insofar as these children are more suitable to be employed to do household chores, work or to care for the ill than are younger children. The differences in school enrolment between children belonging to affected and non-affected households were not that pronounced, given the relatively small number of children concerned. However, the differences in enrolment between affected and non-affected households were statistically significant in the case of children aged 14-18. Non-attendance was higher amongst children belonging to affected households, i.e. 6.6% compared to 5.7% (wave I), 10.4% compared to 3.4% (wave II), and 4.7% compared to 2.3% (both waves)(Table 58). These results supports the argument that HIV/AIDS in particular may cause children and in this case older children to be taken from school so as to help the household cope with the burden of illness and/or death and the related pressures.

Figure 21: Percentage of children aged 7-18 years not attending school

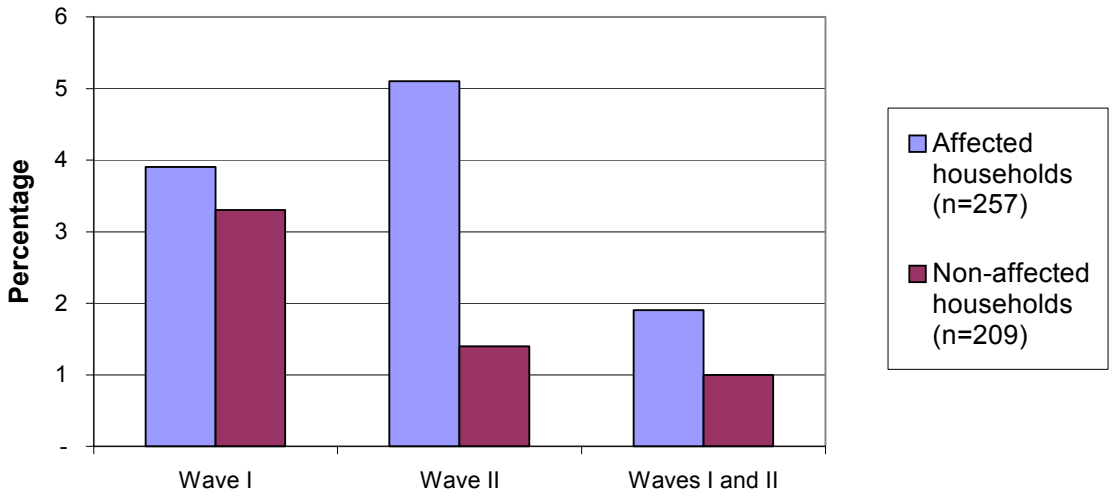


Table 59: Enrollment among children aged 7-18 years in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
A. Primary school														
No of children aged 7-13 years	100 (95)	100 (98)	100 (71)	100 (67)	100 (71)	100 (68)	100 (62)	100 (61)	100 (308)	100 (294)	100 (166)	100 (166)	100 (142)	100 (128)
Not attending school	2 (2)	3 (3)	1 (1)	2 (1)	3 (2)	2 (1)	3 (2)	0 (0)	2 (7)	2 (5)	2 (4)	2 (4)	2 (3)	1 (1)
- *Male*	50 (1)	100 (3)	100 (1)	0 (0)	100 (2)	100 (1)	0 (0)	0 (0)	57 (4)	80 (4)	75 (3)	100 (4)	33 (1)	0 (0)
- *Female*	50 (1)	0 (0)	0 (0)	100 (1)	0 (0)	0 (0)	100 (2)	0 (0)	43 (3)	20 (1)	25 (1)	0 (0)	67 (2)	100 (1)
B. Secondary school														
No of children aged 14-18 years	100 (64)	100 (60)	100 (55)	100 (60)	100 (63)	100 (61)	100 (53)	100 (50)	100 (235)	100 (231)	100 (127)	100 (121)	100 (108)	100 (110)
Not attending school	5 (3)	5 (3)	11 (6)	5 (3)	14 (9)	13 (8)	6 (3)	2 (1)	9 (21)	7 (15)	9 (12)	9 (11)	8 (9)	4 (4)
- *Male*	0 (0)	67 (2)	67 (4)	67 (2)	22 (2)	38 (3)	33 (1)	0 (0)	33 (7)	47 (7)	17 (2)	46 (5)	56 (5)	50 (2)
- *Female*	100 (3)	33 (1)	33 (2)	33 (1)	78 (7)	63 (5)	67 (2)	100 (1)	67 (14)	53 (8)	83 (10)	55 (6)	44 (4)	50 (2)
C. Total														
No of children aged 7-18 years	100 (159)	100 (158)	100 (126)	100 (127)	100 (134)	100 (129)	100 (115)	100 (111)	100 (534)	100 (525)	100 (293)	100 (287)	100 (241)	100 (238)
Not attending school	3 (5)	4 (6)	6 (7)	3 (4)	8 (11)	7 (9)	4 (5)	1 (1)	5 (28)	4 (20)	6 (16)	5 (15)	5 (12)	2 (5)
- *Male*	20 (1)	83 (5)	71 (5)	50 (2)	36 (4)	44 (4)	20 (1)	0 (0)	39 (11)	55 (11)	31 (5)	60 (9)	50 (6)	40 (2)
- *Female*	80 (4)	17 (1)	29 (2)	50 (2)	64 (7)	56 (5)	80 (4)	100 (1)	61 (17)	45 (9)	69 (11)	40 (6)	50 (6)	60 (3)

A larger proportion of children in affected households aged 7-18 that were not enrolled in wave I were female (69%)(Table 59). However, in wave II a larger proportion of male children in affected households was not enrolled, i.e. 60% male compared to 40% female children aged 7-18. The differences in the gender composition of children aged 7-18 in non-affected households not attending school are not that pronounced. However, gender does seem to play a role when comparing non-attendance amongst younger (7-13 years) and older (14-18 years) children, although it should be kept in mind that the number of children not attending school is relatively small, which means that small differences in the number of children that are male or female translates into relative large percentage differences. In the case of affected households, non-attendance amongst children aged 7-13 in wave I was primarily amongst male children (75% wave I and 100% wave II). In the case of non-affected households, it was primarily female children that were not enrolled in school (67% wave I and 100% wave II). In the case of children aged 14-18, which as argued above may be more likely to be taken from school in order to help the household to cope with the impact of HIV/AIDS, 83% (wave I) and 55% (wave II) of children not attending school was female. The differences in the gender composition of children aged 14-18 in non-affected households not attending school are not that pronounced. Furthermore, a slightly larger proportion of the seven children aged 14-18 that did not attend school in both waves are female, i.e. 42.9% male compared to 57.1% female children not attending school in both waves. The fact that it is primarily older, female children in affected households that are not attending school supports the argument that female children in particular are often employed in caring for ill persons and/or for doing household chores that other household members cannot perform because they themselves are either ill or have to care for the ill.

Multiple logistical regression was employed to come to a better understanding of factors that explain why some children are attending school while other are not. Given that both affected and non-affected households are likely to be sheltering AIDS orphans, these analyses are important in shedding more light on the nature of the orphan problem in two communities where HIV prevalence rates are relatively high. Separate analyses were performed for wave I and wave II for each of three different outcomes, i.e. children aged

7-13, 14-18 and aged 7-18 respectively attending (outcome=1) or not attending school (outcome=0). The results of these regression analyses are respectively reported in Tables 60, 61 and 62. The analyses were conducted at the individual level and were adjusted for clustering at the household level. The explanatory variables included in the regression models are the gender and age of the child, the affected status of the household, the number of recent deaths, number of ill persons and number of orphans in the particular household, the gender and age of the head of the household, the household size, the dependency ratio, deciles of average household income, and variables respectively indicating whether the household has access to medical aid, is a recipient of government grants, has asked and received help from relatives and friends, and lives in an urban or rural area. According to the results of these analyses, the following represents significant predictors of the enrolment status of children. As mentioned elsewhere, these results need to be interpreted in the context of the relatively small number of children not attending school (particularly in the case of children aged 7-13), which means that the pooling of data from a larger number of panels would probably allow more reliable analysis of the determinants of school enrolment.

Table 60: Predictors of child aged 7-13 years attending school: Logistical regression models

Explanatory variables and summary statistics	Wave I		Wave II	
	Odds ratio	P	Odds ratio	P
Male versus female child	1.262	0.814	7.642	0.369
Age of child	1.148	0.473	1.605	0.144
Household income (by deciles)	1.123	0.480	1.236	0.318
Urban versus rural location	0.313	0.310	**5.346**	**0.024**
Affected versus non-affected status	1.832	0.621	6.548	0.338
Access to medical aid	1.767	0.723	0.214	0.384
Male versus female head of household	**43.226**	**0.050**	2.501	0.214
Age of head of household	**1.067**	**0.047**	0.997	0.913
Household size	**0.625**	**<0.001**	0.947	0.682
Dependency ratio	0.990	0.784	0.948	0.195
Household has asked and received help	0.318	0.164	1.138	0.954
Household received government grant	0.979	0.985	2.168	0.373
Number of persons that are ill	2.366	0.241	0.984	0.962
Number of persons that have died	1.367	0.725	1.018	0.982
Number of orphans in household	0.668	0.261	0.786	0.428
Sample (n)		*269*		*294*
LR chi2 (P)		*<0.001*		*<0.001*
Pseudo R^2		*0.264*		*0.246*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level. Adjusted for clustering at the household level.

Children aged 7-13 was more likely to be attending school in wave I if they belonged to households in which the household head is female, if the household was headed by an older person, and if the household was smaller (Table 60). In wave II, children aged 7-13 were more likely to attend school if they belonged to an urban rather than a rural household. Both the children in this age group not attending school in wave II live in Welkom. The two models explain approximately 25% of differences in enrollment amongst children aged 7-13.

Table 61: Predictors of child aged 14-18 years attending school: Logistical regression models

Explanatory variables and summary statistics	Wave I		Wave II	
	Odds ratio	P	Odds ratio	P
Male versus female child	0.415	0.112	1.048	0.939
Age of child	**0.509**	**0.010**	**0.658**	**0.037**
Household income (by deciles)	1.090	0.456	0.985	0.908
Urban versus rural location	0.785	0.712	0.537	0.349
Affected versus non-affected status	1.140	0.857	2.430	0.173
Access to medical aid	1.697	0.661	0.700	0.716
Male versus female head of household	2.176	0.204	0.538	0.379
Age of head of household	0.972	0.322	1.009	0.669
Household size	0.955	0.746	0.970	0.768
Dependency ratio	1.014	0.384	0.997	0.865
Household has asked and received help	1.561	0.487	1.093	0.898
Household received government grant	3.065	0.160	1.811	0.449
Number of persons that are ill	1.672	0.156	0.769	0.477
Number of persons that have died	0.739	0.742	0.954	0.942
Number of orphans in household	1.481	0.397	0.903	0.740
Sample (n)		*214*		*231*
LR chi2 (P)		*<0.001*		*0.107*
Pseudo R^2		*0.199*		*0.096*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level. Adjusted for clustering at the household level.

The logistical regression results looking at enrolment of children aged 14-18 in wave I and in wave II shows that older children were more likely to not be attending school (Table 61). No other variables featured as statistically significant determinants of enrollment amongst children aged 14-18. Moreover, differences in age explain only a very small percentage of differences in school enrollment of children aged 14-18, i.e. less than 20%.

Table 62: Predictors of child aged 7-18 years attending school: Logistical regression models

Explanatory variables and summary statistics	Wave I		Wave II	
	Odds ratio	P	Odds ratio	P
Male versus female child	0.636	0.252	1.607	0.351
Age of child	0.862	0.140	**0.798**	**0.035**
Household income (by deciles)	1.057	0.575	1.024	0.838
Urban versus rural location	0.475	0.182	0.817	0.666
Affected versus non-affected status	1.056	0.924	2.583	0.105
Access to medical aid	2.209	0.399	0.536	0.381
Male versus female head of household	**3.427**	**0.046**	0.686	0.471
Age of head of household	1.008	0.733	1.009	0.532
Household size	0.856	0.135	0.984	0.848
Dependency ratio	1.021	0.117	0.996	0.813
Household has asked and received help	0.864	0.789	1.276	0.636
Household received government grant	1.781	0.387	1.441	0.490
Number of persons that are ill	**1.686**	**0.086**	0.823	0.453
Number of persons that have died	0.823	0.779	0.863	0.738
Number of orphans in household	1.271	0.416	0.874	0.457
Sample (n)		*483*		*525*
LR chi2 (P)		*<0.001*		*0.010*
Pseudo R^2		*0.152*		*0.095*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level. Adjusted for clustering at the household level.

When the enrolment status of all children of school-going age is employed as outcome variable, two explanatory variables feature in the model for wave I, whereas one variable only in the case of the model for wave II (Table 62). In wave I, children were more likely to be attending school if they belonged to households headed by females and if the household to which they belonged included a larger number of ill persons. However, the latter does not make sense insofar as one would expect enrollment to be less and not more likely for children belonging to households that include a larger number of ill persons. In wave II, as in the case of the regression looking at enrolment amongst children aged 14-18, older children were more likely to not be attending school. As in the case of the other

four models, these two models only explain a relatively small proportion of variance in enrollment, i.e. 15% (wave I) and 10% (wave II). This and the obviously spurious nature of the statistically significant relationship between enrollment and the number of ill persons in the household underlines the extent to which the relatively small number of children not attending school may influence the results of relatively complex analyses, thus necessitating the pooling of data from a larger number of rounds of interviews.

The panel design of this household impact study also allows one to perform analyses that look at the relationship between enrollment and changes over time in selected variables, thus allowing one to determine how the data from wave I and wave II can in combination explain enrollment outcomes. The results of these analyses are reported in Table 63. Certain variables on household characteristics were mainly included as recorded in wave I, e.g. urban versus rural location, affected and non-affected status, household size, and age and gender of the head of the household and of the child. Other variables, such as the dependent variable, now distinguish between children enrolled in both waves (value=2), children enrolled in one wave only (value=1), and children enrolled in neither wave (value=0). The following variables based on changes between wave I and II were also included in the analyses:

- change in adult equivalent household income between wave I and II
- access to medical aid in wave I and II, i.e. whether households had access to medical aid in both waves, only in one, or in neither wave
- household asked and received help from family or friends in wave I and II, i.e. whether households had asked and received help in both waves, only in one, or in neither wave
- household received a government grant in wave I and II, i.e. whether households had received a government grant in both waves, only in one, or in neither wave
- change in household size between wave I and II
- change in dependency ratio between wave I and II
- change in number of ill persons in the household between wave I and II
- change in the number of recent deaths in the household between wave I and II

- change in the number of orphans sheltered by the household between wave I and II
- change in number of years of schooling between wave I and II
- change in number of employed household members between wave I and II
- household moved to a new residence between wave I and II
- change in gender of the head of the household between wave I and II, either male to female or male to female
- change in age of the head of the household between wave I and II

No statistically significant model could be estimated for the enrollment status of children aged 14-18. Although the other two models still explain only a very small proportion of differences in enrollment status (i.e. less than 12%), the results point to the following as important predictors of differences in the enrollment status of children aged 7-13 and children aged 7-18 (Table 63). Children aged 7-13 were more likely to be attending school in both waves if they belonged to households living in an urban area, if the household to which they belonged was headed by a female, if the household was headed by a younger person, if the household had asked and received help from family, friends and others in both waves, if the household had experienced a smaller number of deaths, and if the household to which the child belonged had not experienced a change in the gender of the head of the household. Some of these statistically significant determinants of the enrollment status of children aged 7-13 can be linked to the impact of HIV/AIDS at the household level. So, for example, an increase in the number of recent deaths experienced by the household can cause the likelihood of enrollment in both waves to fall. On the other hand, access to assistance from family, friends and others (i.e. support from the extended family and community) appears to play an important role in ensuring children remain in school. Furthermore, a change in the headship of a household explain why children are perhaps not enrolled in school, which may be linked to the affect of HIV/AIDS on the cohesion of households, i.e. HIV/AIDS often causing households to dissolve or change in composition.

Table 63: Predictors of children attending school between waves I and II: Multiple regression models

Explanatory variables and summary statistics	Child aged 7-13 years attending school		Child aged 7-18 years attending school	
	Coefficient	P	Coefficient	P
Δ in adult equivalent household income (Rand) between waves I and II	0.000	0.572	-0.000	0.807
Current age of child	-0.010	0.843	-0.005	0.902
Gender of child	0.016	0.230	**-0.014**	**0.033**
Urban versus rural location in wave I	**-0.108**	**0.066**	-0.049	0.273
Affected versus non-affected status	0.074	0.193	0.027	0.606
Access to medical aid in waves I and II	0.014	0.749	-0.008	0.813
Male versus female head of household in wave I	**0.116**	**0.042**	0.062	0.192
Age of head of household (by deciles) in wave I	**-0.164**	**0.010**	0.004	0.935
Δ in household size between wave I and II	0.000	0.998	-0.008	0.722
Household size in wave I	-0.000	0.954	-0.010	0.285
Received government grant in waves I and II	0.008	0.803	0.010	0.703
Asked and received help in waves I and II	**0.080**	**0.061**	0.047	0.163
Δ in number of ill persons between waves I and II	-0.016	0.580	0.018	0.560
Δ in number of deaths between waves I and II	**-0.116**	**0.084**	0.042	0.463
Δ in number of orphans household sheltered	-0.032	0.152	**0.062**	**0.019**
Household did not live at same residence during waves I and II	-0.328	0.121	-0.178	0.292
Δ in gender of household head between waves I and II	0.072	0.489	0.080	0.311
Δ in dependency ratio between waves I and II	-0.000	0.619	**-0.002**	**0.003**
Δ in age of household head between waves I and II	**-0.013**	**0.007**	-0.002	0.510
Constant	**2.909**	**<0.001**	**2.882**	**<0.001**
Sample (n)		*289*		*498*
F value (P)		*1.82 (0.020)*		*1.82 (0.018)*
R^2		*0.114*		*0.067*
Adjusted R^2		*0.051*		*0.030*

Note: Coefficients and P values in bold are statistically significant at a 0.10 level. None of the models for the outcomes children aged 14-18 years attending school were statistically significant. Adjusted for clustering at the household level.

Children of school-going age (i.e. 7-18 years) are more likely to attend school if they are male, if the household to which they belong are sheltering an increasing number of orphans, and if the dependency ratio has fallen over time (Table 63). Hence, this particular regression again emphasizes the fact that female children are more likely to be taken from school than are male children. The latter results, though, appear contradictory insofar as a larger number of orphans being sheltered by a household should actually see the dependency ratio increase. Yet, the results suggest that enrollment is more likely if the dependency ratio falls, which makes sense insofar as households with fewer dependents may find it easier to afford to keep children in school amidst having to cope with other pressures. On the other hand, the fact that households with more orphans are actually more likely to see all children enrolled in school does not make sense, given that one would expect households with more orphans to perhaps find it more difficult to keep these children in school, unless of course those households sheltering orphans consider it particularly important to ensure that the children do in fact attend school. As in the case of other regression results presented in this report, more detailed analysis of the data from a larger number of rounds of interviews are required to explore these particular issues in greater detail.

(ii) Orphans

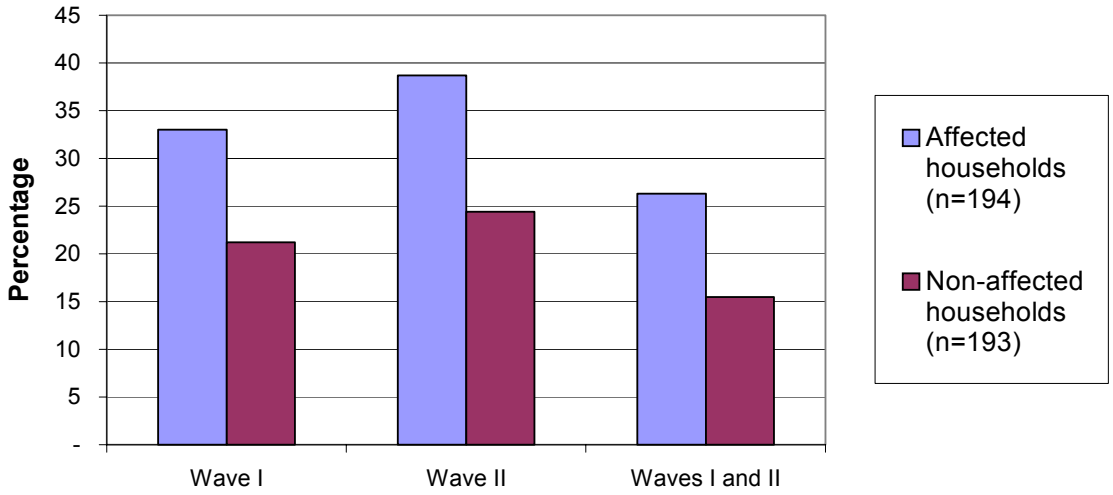
Almost a third of households in the sample by wave II sheltered at least one orphaned child (Table 64 and Figure 22). Just more than a fifth of households sheltered an orphaned child in both waves. As expected, a larger proportion of affected households (33% wave I and 38.7% wave II) shelter orphans compared to non-affected households (21.2% wave I and 24.4% wave II). Respectively 26.3% and 15.5% of affected and non-affected households sheltered an orphan in both waves. A relatively large number of non-affected households therefore also shelter orphans, which is understandable insofar as the HIV/AIDS epidemic means that communities in general are faced with the orphan problem rather than only directly affected households.

Table 64: Changes between waves I and II in percentage of households sheltering orphaned children

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Total sample	96	100.0	95	100.0	98	100.0	98	100.0	387	100.0	194	100.0	193	100.0
Wave I	32	33.3	13	13.7	32	32.7	28	28.6	105	27.1	64	33.0	41	21.2
Wave II	43	44.8	20	21.1	32	32.7	27	27.6	122	31.5	75	38.7	47	24.4
Waves I and II	29	30.2	11	11.6	22	22.4	19	19.4	81	20.9	51	26.3	30	15.5
P (Fischer's Exact test)		*<0.001*		*<0.001*		*<0.001*		*<0.001*				*<0.001*		*<0.001*

Note: Orphaned children represents children whose biological mother or father is not alive.

Figure 22: Percentage of households sheltering orphans



Interesting as well is that the difference between the proportion of affected and of non-affected households that shelter orphans are more pronounced in the case of Welkom than in the case of Qwaqwa (Table 64), which may suggest that the extended family perhaps plays a relatively more important role in traditional, rural areas in coping with the orphan problem than is the case in urban areas.

Figure 23: Children 15 years or under that are orphaned

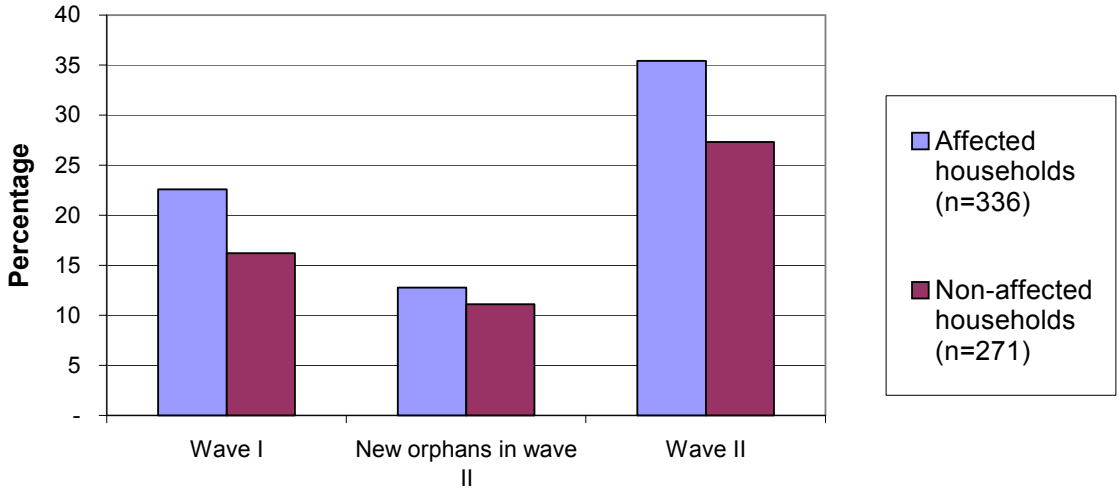


Table 65: Changes between waves I and II in percentage of children aged fifteen years and under that are orphaned

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
A. Mother not alive														
Total sample	197	100.0	135	100.0	139	100.0	136	100.0	607	100.0	336	100.0	271	100.0
Wave I	21	10.7	6	4.4	6	4.3	3	2.2	36	5.9	27	8.0	9	3.3
New orphans in wave II	17	8.6	6	4.4	12	8.6	4	2.9	39	6.4	29	8.6	10	3.7
Wave II	38	19.3	12	8.9	18	12.9	7	5.1	75	12.4	56	16.7	19	7.0
P (Fischer's Exact test)		*<0.001*		*<0.001*		*<0.001*		*1.000*		*<0.001*		*<0.001*		*<0.001*
B. Mother or father not alive														
Total sample	197	100.0	135	100.0	139	100.0	136	100.0	607	100.0	336	100.0	271	100.0
Wave I	46	23.4	16	11.9	30	21.6	28	20.6	120	19.8	76	22.6	44	16.2
New orphans in wave II	28	14.2	21	15.6	15	10.8	9	6.6	73	12.0	43	12.8	30	11.1
Wave II	74	37.6	37	27.4	45	32.4	37	27.2	193	31.8	119	35.4	74	27.3
P (Fischer's Exact test)		*<0.001*		*<0.001*		*<0.001*		*<0.001*		*<0.001*		*<0.001*		*<0.001*
C. Mother and father not alive														
Total sample	197	100.0	135	100.0	139	100.0	136	100.0	607	100.0	336	100.0	271	100.0
Wave I	8	4.1	2	1.5	2	1.4	2	1.5	14	2.3	10	3.0	4	1.5
New orphans in wave II	15	7.6	0	0.0	6	4.3	3	2.2	24	4.0	21	6.3	3	1.1
Wave II	23	11.7	2	1.5	8	5.8	5	3.7	38	6.3	31	9.2	7	2.6
P (Fischer's Exact test)		*<0.001*		*<0.001*		*0.009*		*0.006*		*<0.001*		*<0.001*		*<0.001*

Note: Wave I orphans exclude children that during wave I were recorded as orphans but during wave II were not recorded as orphans.

Of the children aged fifteen years and under that were part of the sample in wave I and in wave II, 12.4%, 31.8% and 6.3% had respectively lost their mother, mother or father, and both mother and father by the time of the second round of interviews (Table 65 and Figure 23). Of these children, 5.9%, 19.8% and 2.3% had already respectively lost their mother, mother or father, and both mother and father by the time of the first wave I.

The extent of orphan hood is substantially higher in the affected group than in the non-affected group of households (Table 65). So, for example, 16.7% compared to 7% of children aged fifteen and under had lost their mother by the time of the second round of interviews, while 35.4% and 9.2% of children in affected households had respectively lost their mother or father and both their parents, compared to 27.3% and 2.6% of children in non-affected households. This suggests a relatively high and increasing incidence of orphan hood amongst the children included in the sample, not only in affected households but also in non-affected households. In fact, the number of orphans in affected households had increased with between 60.8% (new maternal or paternal orphans) and 171.4% (new maternal and paternal orphans) over the six-month period between the two rounds of interviews, with the increase being higher in the group of affected households than in the non-affected group. The increase in the number of orphans was also more pronounced in the case of Welkom than in the case of Qwaqwa, with between 60% and 80% of the new orphans belonging to households residing in Welkom.

Table 66: Number of orphaned children in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Total children aged fifteen or under	100 (214)	100 (214)	100 (149)	100 (145)	100 (165)	100 (153)	100 (153)	100 (152)	100 (681)	100 (664)	100 (379)	100 (367)	100 (302)	100 (297)
A. Maternal orphans														
Orphans who lost their mother	14 (29)	19 (41)	5 (7)	8 (12)	7 (11)	12 (19)	5 (7)	7 (10)	8 (54)	12 (82)	11 (40)	16 (60)	5 (14)	7 (22)
- *Male*	38 (11)	39 (16)	71 (5)	83 (10)	64 (7)	63 (12)	57 (4)	40 (4)	50 (27)	51 (42)	45 (18)	47 (28)	64 (9)	64 (14)
- *Female*	62 (18)	61 (25)	27 (2)	17 (2)	36 (4)	37 (7)	43 (3)	60 (6)	50 (27)	49 (40)	55 (22)	53 (32)	36 (5)	36 (8)
B. Maternal or paternal orphans														
Orphans who lost their mother or father	26 (56)	38 (81)	16 (24)	28 (41)	31 (51)	32 (49)	37 (57)	28 (42)	28 (188)	32 (213)	28 (107)	35 (130)	27 (81)	28 (83)
- *Male*	39 (22)	39 (32)	42 (10)	71 (29)	47 (24)	51 (25)	51 (29)	48 (20)	45 (85)	50 (106)	43 (46)	44 (57)	48 (39)	59 (49)
- *Female*	61 (34)	61 (49)	58 (14)	29 (12)	53 (27)	49 (24)	49 (28)	52 (22)	55 (103)	50 (107)	57 (61)	56 (73)	52 (42)	41 (34)
C. Maternal and paternal orphan														
Orphans who lost their mother and father	6 (12)	11 (24)	2 (3)	1 (2)	2 (4)	6 (9)	3 (4)	5 (8)	3 (23)	6 (43)	4 (16)	9 (33)	2 (7)	3 (10)
- *Male*	33 (4)	33 (8)	100 (3)	0 (0)	75 (3)	67 (6)	50 (2)	38 (3)	52 (12)	44 (19)	44 (7)	42 (14)	71 (5)	50 (5)
- *Female*	67 (8)	67 (16)	0 (0)	100 (2)	25 (1)	33 (3)	50 (2)	62 (5)	48 (11)	56 (24)	56 (9)	58 (19)	29 (2)	50 (5)

In most cases an almost equal number of orphans in the total sample are male and female (Table 66). However, there are considerable differences in the gender composition of orphans in the different clusters of households. So, for example, the orphans in affected households in Welkom are primarily female, while those in the non-affected households are primarily male. In the case of Qwaqwa, the orphans in affected households are mostly male, whereas there are no consistent or clear-cut differences in the gender composition of orphans sheltered by non-affected households. Since this study does not look into the orphan problem in more specific detail, it is not possible to for example determine whether certain households have a preference for sheltering female rather than male orphans or vice versa.

Table 67 suggests that non-affected households in Qwaqwa that do shelter orphans generally face a slightly larger concentration of orphans than do affected households, with almost half of these households sheltering two or more orphans. In the case of Welkom, the concentration of orphans is slightly more pronounced in affected households. This is understandable insofar as the extended family, which may be more intact in rural than in urban areas, often absorbs orphaned children. Furthermore, the sampling of non-affected households only purposively attempted to sample households not affected by HIV/AIDS-related illness at the time of the interview and did not attempt to screen households in terms of the other ways in which households are affected indirectly by the epidemic (e.g. having to give shelter to orphaned children or having to care for friends and family members in neighboring households). In general, Table 67 shows that the impact on households of the orphan problem may be particularly severe, given that a relatively large proportion of households that do shelter orphans have to shelter more than one orphaned child.

Table 67: Number of households sheltering orphans who have lost at least one parent in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Total number of households	100 (101)	100 (96)	100 (100)	100 (95)	100 (101)	100 (97)	100 (104)	100 (99)	100 (406)	100 (387)	100 (202)	100 (193)	100 (204)	100 (194)
Number sheltering orphans	34 (34)	45 (43)	15 (15)	21 (20)	33 (33)	33 (32)	27 (28)	27 (27)	27 (110)	32 (122)	33 (67)	39 (75)	21 (43)	24 (47)
- 1 orphan	*56 (19)*	*49 (21)*	*73 (11)*	*45 (9)*	*58 (19)*	*69 (22)*	*43 (12)*	*63 (17)*	*55 (61)*	*57 (69)*	*57 (38)*	*57 (43)*	*53 (23)*	*55 (26)*
- 2 orphans	*29 (10)*	*26 (11)*	*7 (1)*	*25 (5)*	*33 (11)*	*16 (5)*	*25 (7)*	*19 (5)*	*26 (29)*	*21 (26)*	*31 (21)*	*21 (16)*	*19 (8)*	*21 (10)*
- 2+ orphans	*15 (5)*	*26 (11)*	*20 (3)*	*30 (6)*	*9 (3)*	*16 (5)*	*32 (9)*	*19 (5)*	*18 (20)*	*22 (27)*	*12 (8)*	*21 (16)*	*28 (12)*	*23 (11)*

Only one orphaned child that belonged to an affected household in Welkom was not attending school at the time of the first round of interviews (wave I). In wave II, only two male orphans, also from affected households in Welkom, were not attending school at the time of the interview. This represents only a very small fraction of orphaned children aged 7-15. The orphaned child not attending school in wave I was female and had lost her mother, while the two male orphans not attending school in wave II had respectively lost a mother and a father. The longitudinal design of this study will allow one to over time monitor changes in school enrolment among orphaned children, which is envisaged to worsen as the epidemic progresses. However, comparisons just between the first two waves will not make a general trend distinguishable, which means that data from more rounds are required to determine the overall trend if any in school enrolment amongst orphaned children. Furthermore, the survey cannot capture enrolment patterns among orphans not remaining within the sample of households over the period of the study. Understandably, it may be those orphaned children forced to live on the street that in fact have no education and a bleak future.

In almost all cases, females head more than 70% of households sheltering orphans. The one exception is non-affected households interviewed in Welkom in wave II, which in 65% of cases are headed by female household members (Table 68). The majority of persons heading households that shelter orphans are widowed (ranging from 40% to 76%). Approximately a fifth of persons heading households that shelter orphans are married, albeit in a civil or traditional manner. The other persons that head households sheltering orphans are either divorced/separated or have never been married. Furthermore, households that shelter orphans on average are somewhat larger than the average household, while the person heading the household on average is relatively old, i.e. older than 50 years in most cases. This implies that some households apart from having to care for older infected members also may have to take responsibility for caring for children displaced by the HIV/AIDS epidemic, thus increasing the pressures on families.

Table 68: Characteristics of households sheltering orphans who have lost at least one parent in waves I and II

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Number sheltering orphans	100 (34)	100 (43)	100 (15)	100 (20)	100 (33)	100 (32)	100 (28)	100 (27)	100 (110)	100 (122)	100 (67)	100 (75)	100 (43)	100 (47)
A. Gender of household head														
Male	27 (9)	28 (12)	13 (2)	35 (7)	18 (6)	22 (7)	18 (5)	26 (7)	20 (22)	27 (33)	22 (15)	25 (19)	16 (7)	30 (14)
Female	74 (25)	72 (31)	87 (13)	65 (13)	82 (27)	78 (25)	82 (23)	74 (20)	80 (88)	73 (89)	78 (52)	75 (56)	84 (36)	70 (33)
P (Fischer's Exact test)	*0.006*	*<0.001*	*<0.001*	*0.024*	*0.002*	*0.071*	*0.012*	*0.473*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*0.018*
B. Marital status of household head														
Married - civil	32 (11)	19 (8)	7 (1)	10 (2)	9 (3)	16 (5)	4 (1)	15 (4)	15 (16)	16 (19)	21 (14)	17 (13)	5 (2)	13 (6)
Married – traditional	0 (0)	7 (3)	0 (0)	5 (1)	6 (2)	6 (2)	7 (2)	4 (1)	4 (4)	6 (7)	3 (2)	7 (5)	5 (2)	4 (2)
Living together	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (1)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	2 (1)
Widowed	50 (17)	40 (17)	60 (9)	50 (10)	76 (25)	72 (23)	64 (18)	67 (18)	63 (69)	56 (68)	63 (42)	53 (40)	63 (27)	60 (28)
Divorced/separated	6 (2)	19 (8)	20 (3)	15 (3)	0 (0)	0 (0)	18 (5)	7 (2)	9 (10)	11 (13)	3 (2)	11 (8)	19 (8)	11 (5)
Never married	12 (4)	16 (7)	13 (2)	20 (4)	9 (3)	6 (2)	7 (2)	4 (1)	10 (11)	11 (14)	10 (7)	12 (9)	9 (4)	11 (5)
P (Pearson Chi-Square)	*0.001*	*<0.001*	*0.002*	*0.035*	*<0.001*	*0.002*	*0.002*	*0.002*			*<0.001*	*<0.001*	*<0.001*	*<0.001*
C. Average household size														
Number of members	6.7	6.2	5.8	5.9	5.1	5.1	5.0	4.6	5.7	5.5	5.9	5.7	5.3	5.2
D. Average age of household head														
Years	56.4	53.7	47.5	52.8	54.2	51.3	54.1	51.2	53.9	52.4	55.3	52.7	51.8	51.9

POVERTY AND HIV/AIDS

As a result of the impact of HIV/AIDS on household economics, poverty is likely to deepen as the epidemic takes its course. The above aspects of the socio-economic impact of HIV/AIDS combine to create a vicious cycle of poverty and HIV/AIDS in which affected households are caught up. As adult members of the household become ill and are forced to give up their jobs, household income will fall. To cope with the change in income and the need to spend more on health care, children are often taken from school to assist in caring for the sick or to work so as to contribute to household income. Because expenditure on food comes under pressures, malnutrition often results, while access to other basic needs such as health care, housing and sanitation also comes under threat. Consequently, the opportunities for children for their physical and mental development are impaired. This acts to further reduce the resistance of household members and children (particularly those that may also be infected) to opportunistic infections, given lower levels of immunity and knowledge, which in turn leads to increased mortality (Bonnel, 2000: 5-6; Wekesa, 2000). Households headed by AIDS widows are also particularly vulnerable, because women have limited economic opportunities and traditional norms and customs may see them severed from their extended family and denied access to an inheritance (UNDP, 1998). In many third world situations, therefore, HIV/AIDS exposes already vulnerable, resource-poor households to further shocks.

Affected households have been shown to be poorer than non-affected households, both in terms of income and expenditure and regardless of whether income or expenditure is measured at the household, per capita or adult equivalent level. In order to further explore this aspect of the socioeconomic impact of HIV/AIDS some comparisons and logistic regression analyses was performed with poverty status as outcome. Poverty status is determined relative to the R800 per month household income level employed by the Department of Local Government in providing assistance to indigent households regarding basic service delivery. Table 69 reports on the percentage of households in each cluster that can be classified as poor in wave I, wave II and in both waves.

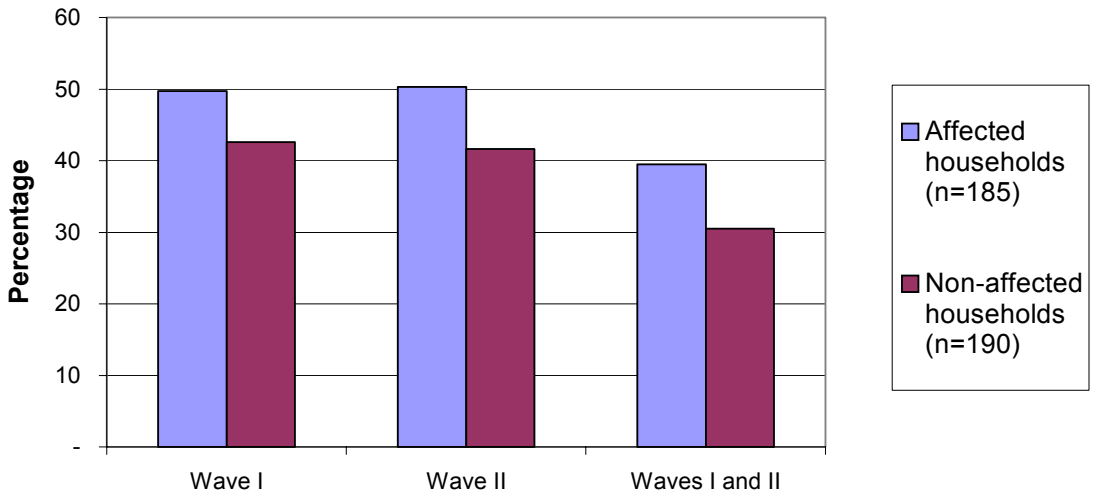
Table 69: Changes between waves I and II in the percentage of households that are poor

Indicator	Welkom Affected		Welkom Non-affected		QwaQwa Affected		QwaQwa Non-affected		Total		Total Affected		Total Non-Affected	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
A. Average monthly household income falls below R800														
Total sample	94	100.0	95	100.0	91	100.0	95	100.0	375	100.0	185	100.0	190	100.0
Wave I	32	34.0	32	33.7	60	65.9	49	51.6	173	46.1	92	49.7	81	42.6
Wave II	33	35.1	33	34.7	60	65.9	46	48.4	172	45.9	93	50.3	79	41.6
Waves I and II	22	23.4	20	21.1	51	56.0	38	40.0	131	34.9	73	39.5	58	30.5
P (Fischer's Exact test)		*<0.001*		*<0.001*		*<0.001*		*<0.001*				*<0.001*		*<0.001*
B. Average monthly household expenditure falls below R800														
Total sample	94	100.0	95	100.0	97	100.0	99	100.0	375	100.0	191	100.0	194	100.0
Wave I	52	55.3	44	46.3	71	73.2	62	62.6	229	61.1	123	64.4	106	54.6
Wave II	57	60.6	56	58.9	86	88.7	69	69.7	268	71.5	143	74.9	125	64.4
Waves I and II	44	46.8	42	44.2	67	69.1	56	56.6	209	55.7	111	58.1	98	50.5
P (Fischer's Exact test)		*<0.001*		*<0.001*		*0.007*		*<0.001*				*<0.001*		*<0.001*

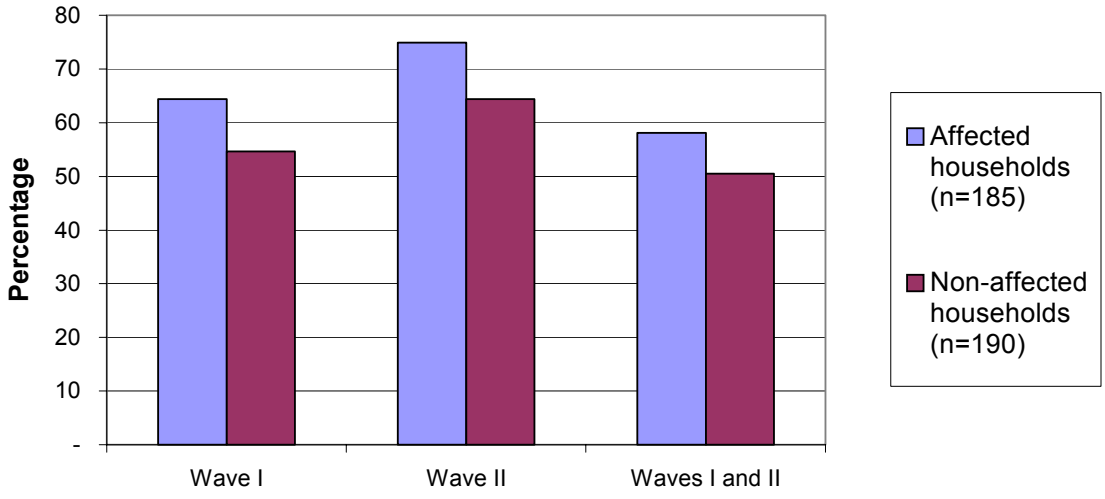
Note: Poor households are defined as households whose average monthly household income or expenditure falls below R800. The sample includes only those households that reported on household income and expenditure over the period.

Figure 24: Percentage of households classified as poor in wave I and in wave II

(a) Income-based poverty estimates



(b) Expenditure-based poverty estimates



Evident from Table 69 and Figure 24 is the relatively high incidence of poverty amongst sampled households. When poverty is defined relative to income levels, almost half of the households could be classified as poor in either wave I or wave II, with 34.9% of households being classified as poor in both waves. In terms of expenditure, the incidence of poverty is even higher, with 60% or more of households being classified as poor in

either wave I or in wave II. 55.7% of households can be classified as poor in both waves when employing monthly household expenditure as the measure of standard of living. There appears to be a considerable movement of households into and out of poverty, which represents an issue that will be explored in more detail in subsequent analyses of these panel data. As expected, poverty is worse in rural areas compared to urban areas, with the incidence of poverty in Welkom ranging from 33.7% to 60.6% and that in Qwaqwa from 48.4% to 88.7%. The incidence of poverty is also generally higher among affected households, with differences in the incidence of poverty being particularly pronounced between affected and non-affected households in Qwaqwa, more so than is the case in Welkom. As such, it is of interest to employ regression analysis to determine what factors act to protect households against poverty or in turn increase their vulnerability.

For the purpose of these analyses, as explained above, an outcome of one indicates that a household is not poor, i.e. monthly household income exceeds R800, while zero indicates that a household is poor, i.e. monthly household income falls below the R800 level. One can of course perform such analyses with alternative poverty lines, however due to constraints of space and time this has not been attempted in this report. The analyses were performed employing both income and expenditure as a proxy of standard of living, i.e. setting the poverty status of households relative to both their monthly average income and expenditure. Although economists generally take expenditure to present a better proxy of standard of living than income, results are reported here for both the income- and expenditure-based outcome measures. The results for the income-based poverty estimates are reported in Table 70, while Table 71 reports on the expenditure-based poverty estimates. Separate analyses were also performed with the data from wave I and wave II, so as to determine the robustness of the results. Included in the multiple logistic regression analyses as explanatory variables were urban/rural residence, affected/non-affected status, gender and age of the household head, the number of ill persons or recent deaths in the household, the number of orphans sheltered by the household, the total number of years of schooling of all household members, the number of employed members in the household, access to medical aid, and the household size and dependency

ratio. Based on the results, the following appears to be the most important determinants of poverty status.

Table 70: Predictors of household poverty status based on income: Logistical regression models

Explanatory variables and summary statistics	Wave I		Wave II	
	Odds ratio	P	Odds ratio	P
Urban versus rural location	**0.540**	**0.031**	0.708	0.210
Male versus female head of household	0.629	0.105	**0.452**	**0.007**
Affected versus non-affected status	1.258	0.476	**1.657**	**0.094**
Household size	0.855	0.176	0.979	0.837
Age of head of household (by deciles)	1.125	0.235	**1.098**	**0.070**
Years of schooling (by deciles)	**1.653**	**0.001**	**1.311**	**0.001**
Number of employed household members	**6.114**	**<0.001**	**6.159**	**<0.001**
Access to medical aid	**17.489**	**<0.001**	**14.064**	**0.002**
Dependency ratio	**1.015**	**0.023**	**1.017**	**0.014**
Number of persons that are ill	0.865	0.428	1.093	0.695
Number of persons that have died	1.778	0.186	**0.419**	**0.054**
Number of orphans in household	0.970	0.867	1.177	0.275
Sample (n)		*392*		*387*
LR chi2 (P)		*<0.001*		*<0.001*
Pseudo R^2		*0.343*		*0.364*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level.

The single most important predictor of income-based poverty status is access to medical aid (Table 70). Households with access to medical aid respectively were 17 (wave I) and 14 times (wave II) more likely to not be poor if poverty status is determined relative to household income. There are a number of plausible explanations for this relationship. On the one hand, medical aid may help households affected by illness and/or death to avoid medical expenditures, which could make higher expenditures at a later stage affordable. However, medical aid coverage may also simply be a marker for having a good job, which implies higher income and expenditure. Alternatively, medical aid cover to lower income earners often excludes dependents, meaning that it only protects households if the breadwinner falls ill. Follow-up surveys and the further analysis of this dataset will help

elucidate this causal pathway. In both wave I and wave II, households with a larger number of employed members and sharing a larger number of years of schooling were more likely to not be poor, as was households with larger dependency ratios. The latter may imply that households with more children and older persons find it easier to cope with illness and death insofar as potentially economically active household members do not have to care for ill persons, which may result in a loss of income to the household. In the case of the wave I results, households residing in urban areas were also more likely to not be poor. The results for wave II is of interest insofar as it emphasizes the possible role of HIV/AIDS and of mortality in particular in increasing the likelihood of a household being classified as poor. Households that had experienced a larger number of recent deaths were more likely to be poor, as were households that are affected, i.e. that includes at least one person that is known to be HIV-positive. In addition, the wave II results suggest that female-headed households are more likely to be poor, as is households headed by older persons.

As was the case in the above analyses, the single most important predictor of expenditure-based poverty status is access to medical aid (Table 71). Households with access to medical aid respectively were 11 (wave I) and 14 times (wave II) more likely to not be poor if poverty status is determined relative to household expenditure. In both wave I and wave II, households with a larger number of employed members and sharing a larger number of years of schooling were more likely to not be poor, as were smaller households. The latter implies that households with fewer members, who have to share available resources between fewer persons. The results for wave I are of interest insofar as it emphasizes the possible role of HIV/AIDS in increasing the likelihood of a household being classified as poor. Affected households (i.e. that includes at least one person that is known to be HIV-positive) are more likely to be poor. In addition, the results suggest that female-headed households are more likely to be poor, as are households headed by older persons. In the case of the wave II results, households residing in urban areas were also more likely to not be poor.

Table 71: Predictors of household poverty status based on expenditure: Logistical regression models

Explanatory variables and summary statistics	Wave I		Wave II	
	Odds ratio	P	Odds ratio	P
Urban versus rural location	0.694	0.164	**0.508**	**0.026**
Male versus female head of household	**0.628**	**0.090**	0.787	0.439
Affected versus non-affected status	**1.730**	**0.070**	1.178	0.607
Household size	**0.827**	**0.082**	**0.824**	**0.092**
Age of head of household (by deciles)	**0.779**	**0.013**	0.993	0.904
Years of schooling (by deciles)	**1.931**	**<0.001**	**1.580**	**<0.001**
Number of employed household members	**1.931**	**0.001**	**1.618**	**0.004**
Access to medical aid	**11.696**	**<0.001**	**14.466**	**<0.001**
Dependency ratio	1.010	0.141	0.999	0.996
Number of persons that are ill	1.143	0.442	0.698	0.160
Number of persons that have died	1.776	0.163	0.474	0.155
Number of orphans in household	1.032	0.854	1.101	0.525
Sample (n)		*403*		*387*
LR chi2 (P)		*<0.001*		*<0.001*
Pseudo R^2		*0.282*		*0.347*

Note: Odds ratios and P values in bold are statistically significant at the 0.10 level.

As explained elsewhere, the longitudinal design of this study also allows one to perform analyses that look at the relationship between poverty and changes over time in selected variables, thus allowing one to determine how the data from wave I and wave II can in combination explain differences in poverty status. The results of these analyses are reported in Table 72. Certain variables on household characteristics were mainly included as recorded in wave I, e.g. urban versus rural location, affected and non-affected status, household size, and age and gender of the head of the household. Other variables, such as the dependent variable, now distinguish between households that were not classified as poor in both waves (value=2), those classified as non-poor in one wave only (value=1), and those classified as poor in both waves (value=0). The following variables based on changes between wave I and II were also included in the analyses:

- access to medical aid in wave I and II, i.e. whether households had access to medical aid in both waves, only in one, or in neither wave
- change in household size between wave I and II
- change in dependency ratio between wave I and II
- incidence of morbidity in wave I and II, i.e. whether households had experienced illness in both waves, only in one, or in neither wave
- incidence of mortality in wave I and II, i.e. whether households had experienced a recent death in both waves, only in one, or in neither wave
- change in number of years of schooling between wave I and II
- change in number of employed household members between wave I and II
- sheltering of orphans by household, i.e. whether households had sheltered an orphan in both waves, only in one, or in neither waves
- household moved to a new residence between wave I and II
- change in gender of the head of the household between wave I and II, either male to female or male to female
- change in age of the head of the household between wave I and II

Five determinants feature in both models regardless of whether poverty status is defined relative to average household income or to average household expenditure (Table 72). Households are more likely to not be poor if they resided in an urban area, if they had access to medical aid in both waves, if the household had become smaller over the period, if the household was not affected by morbidity in either wave, and if the number of years of schooling of the household members had increased. Interesting here is that whereas mortality featured in some of the regression models presented in Tables 70 and 71, that morbidity in Table 41 presents a statistically significant determinant of poverty status, thus emphasizing the possible role of HIV/AIDS-related illness in entrenching poverty at the household level. Respectively two and one independent variable featured only in the income- and expenditure-based models. In the case of the income-based model, households were also more likely to be poor if headed by female household members and if a change had occurred in the gender of the head of the household. In the case of the expenditure-based model, households were also more likely to be poor if

headed by an older person. The results presented in the latter pages thus show that not only conventional determinants of poverty, such as employment, education and household size, but also HIV/AIDS-related determinants such as affected status and the presence of mortality and morbidity play a role in explaining why certain households are poorer than others.

Table 72: Predictors of household poverty status between waves I and II: Multiple regression models

Explanatory variables and summary statistics	**Average total household income exceeds R800 per month**		**Average total household expenditure exceeds R800 per month**	
	Coefficient	**P**	**Coefficient**	**P**
Urban versus rural location in wave I	**-0.311**	**<0.001**	**-0.191**	**0.008**
Affected versus non-affected status	-0.036	0.720	-0.014	0.876
Access to medical aid in waves I and II	**0.447**	**<0.001**	**0.565**	**<0.001**
Male versus female head of household in wave I	**-0.224**	**0.007**	-0.079	0.291
Age of head of household (by deciles) in wave I	0.001	0.946	**-0.052**	**0.038**
Δ in household size between wave I and II	**-0.124**	**0.009**	**-0.075**	**0.079**
Affected by morbidity in waves I and II	**-0.126**	**0.031**	**-0.105**	**0.048**
Affected by mortality in waves I and II	-0.148	0.155	-0.106	0.263
Δ in years of schooling between waves I and II	**0.132**	**<0.001**	**0.131**	**<0.001**
Δ in number of employed household members between waves I and II	-0.006	0.892	0.008	0.842
Household sheltered orphan in waves I and II	0.067	0.195	0.044	0.348
Household did not live at same residence during waves I and II	-0.039	0.892	0.126	0.632
Δ in gender of household head between waves I and II	**-0.262**	**0.061**	0.006	0.959
Δ in dependency ratio between waves I and II	0.000	0.822	0.000	0.508
Δ in age of household head between waves I and II	0.000	0.989	0.003	0.551
Constant	**2.450**	**<0.001**	**1.586**	**<0.001**
Sample (n)		*386*		*386*
F value (P)		*11.44 (<0.001)*		*15.20 (<0.001)*
R^2		*0.316*		*0.381*
Adjusted R^2		*0.289*		*0.356*

Note: Coefficients and P values in bold are statistically significant at least at a 0.10 level.

DISCUSSION

Limitations of the study

The sample differs distinctly from the general South African population, which can largely be attributed to the particular sampling design. Given that affected households were sampled from networks and/or organizations involved in counseling, home-based care and public health care and mainly in poorer communities, the sample does not include affected households that mainly utilize private health care services. Moreover, the study was conducted in one specific province (Free State) and in two selected sites only (Welkom and Qwaqwa). However, the fact that South Africa's poor, predominantly African population face relatively high HIV prevalence rates and are particularly vulnerable to the epidemic and therefore dependent on support from the public service sphere, means that the findings and recommendations put forward in this report are especially relevant to informing government's responses to HIV/AIDS.

Moreover, conducting household interviews with one respondent only has certain limitations. So, for example, it is not possible to collected detailed information in this manner on information regarding more individual coping responses and the exact manner in which communities for example may cope with a considerable increase in deaths by changing funeral practices. It is envisaged that qualitative techniques such as focus groups will be employed in future waves to elucidate some of these issues.

Another limitation of the study is that the HIV status of each household member was not known for certain, and the index cases were not identified for reasons of confidentiality. HIV/AIDS status was clearest for those reported to have received a diagnosis of HIV/AIDS, and probably comprised a large proportion of those diagnosed with tuberculosis and pneumonia. Given the high prevalence of HIV infection in these populations, it is likely that at least 10% members of “non-affected” households were HIV-positive but had not to our knowledge had been tested or reported. The various

comparisons between "affected" and non-affected households therefore probably underestimate the true differences attributable to HIV/AIDS.

A cause for concern is that with deaths having recently occurred in a relatively large number of affected households, some of these households may no longer contain anyone infected with HIV. However the effects of their deaths are likely to persist in many cases. On the other hand, infections in so-called non-affected households may later start manifesting in the form of an increased incidence of HIV/AIDS-related disease and death. This underlines the importance of implementing mechanisms to fight attrition of the original sample and to devise ways in which to be able to reassign households to the affected and non-affected groups over time.

This study has quantified the burden of illness and death in households affected by HIV/AIDS and has elucidated the possible severity of the related socioeconomic impact. At this stage, comparisons with non-affected households suggests that most of this burden was due to HIV infection per se. Yet, it is difficult to detect clear time trends of mortality, morbidity and their socioeconomic impact from data collected at 2 time points only 6 months apart. Further 6-monthly follow-up interviews will provide better evidence of the long-term socioeconomic impact of HIV on households, and will permit us better to distinguish socioeconomic antecedents from socioeconomic effects of HIV infection.

Morbidity and mortality

The study shows a continuing and severe burden of disease among affected households, suggesting that a high proportion of HIV-infected individuals had reached a late stage of disease. Many infected households had more than one ill person and, occasionally, more than one death. This could be due to infection between household members, or adoption of more than one HIV-infected orphan into some households. Alternatively, the socioeconomic impact of HIV could lead to poverty, which would increase the risk of almost any illness.

The lower prevalence of illness, compared to baseline, could be because the baseline survey was conducted during winter, while wave II of the survey was conducted during summer. While this could account for a decrease in the rate of upper respiratory infections, however, it is less likely to account for such a marked decrease in tuberculosis incidence. More analysis is required to explore possible explanations for this phenomenon, e.g. determining whether ill persons may have left these households since the first round of interviews.

A minority of affected households experienced a substantial direct economic impact of illness and death due to lost income or health care expenses. This is mainly due to free government health services, and high unemployment rates among ill people and their caregivers. It is plausible that lost income due to the death of a household member may have been under-reported because the person had been chronically ill and unemployed for some time.

Socioeconomic impact of HIV/AIDS

Affected households, although larger than non-affected households, actually face more severe resource constraints insofar as household resources have to be shared between larger numbers of mostly economically inactive persons than is the case in non-affected households. Early evidence about the composition of affected and non-affected households also suggests that the epidemic may be causing households to increasingly give shelter to members of their extended family, implying that the extended family still plays a relatively important role in coping with the epidemic. Evidence about the out-migration of household members from the sample population also presents some support of the importance of the extended family.

Affected households spend less on food than non-affected households, with per capita and adult equivalent levels of expenditure on food representing between 60% and 80% of the levels of expenditure in non-affected households. In the longer run, this may contribute to malnutrition amongst household members. This also means that it will be

particularly important to investigate policy programs that can enhance the food security of affected households, e.g. by offering access to food parcels at counseling and support organizations or via home-based care initiatives and/or by capacitating households to where possible grow basic foodstuffs for own consumption.

Difference in expenditure patterns are equally important in terms of understanding the impact of HIV/AIDS on the economy. Affected households, in terms of the composition of regular household expenditure, allocate relatively MORE of their resources to food, health care, household maintenance and rent and LESS to education, clothing, personal items and durables when compared to non-affected households. Broadly similar patterns emerged when comparing the composition of regular household expenditure across households that had more frequently experienced illness and death. Particularly important in terms of these results is the apparent crowding out of expenditure on education, personal items and durables in affected households in favor of expenditure on health care and food. This for example suggests that there may be scope for government or donor agencies to more widely implement support programs that will aid households in meeting those expenses required to send their children to school and to meet their most basic needs.

New borrowing and the utilization of savings appear to be common strategies employed by affected households to cope with illness and particularly with a death in the household. The sale of assets is a less common strategy mainly due to households being relatively poor and asset ownership being relatively low. The amount of savings utilized and money borrowed by affected households in the recent past are considerable when respectively expressed relative to current savings and total debt, or relative to average household income. Hence, illness and death appear to put considerable strain on household finances. The danger of course in the longer run is that these actions will move households deeper into poverty as more resources are crowded out in favor of debt repayments in the absence of improvements in the economic circumstances of the household. On a macroeconomic level, this also has implications for the overall level of domestic savings, which may decline, and the level of interest rates, which may increase

in the face of increasing defaults on debt, particularly in the micro-credit industry where household have been shown to relatively often access credit.

Because of the considerably cost of funerals a death puts a much greater financial burden on a household than does illness, even where unemployment levels are very high and household members are primarily cared for by relatives with no direct loss of income. Although funeral practices are largely prescribed by culture, which makes large, relatively expensive funerals the rule, options for lowering the cost of funerals should be explored so as to lower the financial burden on households. Greater and wider access to affordable funeral insurance may be important in this regard, particularly where the access of the unemployed and poor to these financial instruments are concerned. Again a public social security system financed from payroll or other taxes and offering some funeral benefits may be feasible and needs to be explored.

Non-attendance of school among children in general and particularly older children (14-18 years), although relatively low, is disconcerting and in some cases appears to be directly related to the HIV/AIDS epidemic. Furthermore, a very high and increasing number of children in the sample population aged fifteen and under have reportedly lost their mother or father, thus pointing to a substantial and growing orphan problem. Hence, the government's current initiative to roll out the child support grant to more households will be important in addressing this adverse impact of the epidemic, while the roll-out of home-based care to more affected households and an increasing awareness of the rights of children and women may also be important in this regard.

Affected households are poorer than non-affected households, regardless of whether income or expenditure is employed as measure of standard of living or whether income or expenditure is measured at the household or individual level or in adult equivalent terms. In addition, poverty also appears to be relatively more endemic among affected households, with a larger proportion of households being classified as poor in both waves. The fact that many households rely heavily on government grants as an important source of income furthermore implies that government will in future years be faced with

increasing claims as the epidemic takes its course. Also, it implies that government will need to look critically at the efficiency and effectiveness of the social welfare system. Lack of access to medical aid has also been shown to be the single most important predictor of poverty status, which probably hints at the importance of employment and education in explaining differences in socio-economic status. The results of this study suggests that the introduction of a broad-based social security system offering minimal benefits or of specifically targeted welfare programs may in the short and medium tern be important in mitigating certain aspects of the impact of the epidemic, e.g. ensuring food security, making sure that children attend school and mitigating the burden of funeral costs. Education, employment and access to medical aid (which here represents a proxy of socio-economic status rather than a factor directly linked to the impact of HIV/AIDS, given that most ill persons access public health care facilities) have been shown to offer protection to households having to cope with illness and death. In the longer run, therefore, continued efforts at poverty reduction through improved education opportunities and job creation are likely to remain important.

In summary, the study shows that households affected by HIV/AIDS bear a substantial burden of illness and death, and that this is associated with more severe poverty. Subsequent follow-up of these households over three years will provide further information on health and socio-economic trends, and will further elucidate the complex causal relationships involved.

APPENDIX

Table A: Socio-economic profile of original sample: Demographic characteristics of heads of household

Characteristic	Welkom Affected		Welkom Non-affected		Qwaqwa Affected		Qwaqwa Non-affected		Total		Total Affected		Total Non-Affected		P
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
A. Population group															
African	72	71.3	83	83.0	100	99.0	104	100.0	359	88.4	172	85.1	187	91.7	<0.001
Colored	28	27.7	17	17.0	1	1.0	0	0.0	46	11.3	29	14.4	17	8.3	<0.001
White	1	1.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.5	0	0.0	
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
B. Gender															
Male	47	46.5	60	60.0	41	40.6	40	38.5	188	46.3	88	43.6	100	49.0	<0.001
Female	54	53.5	40	40.0	60	59.4	64	61.5	218	53.7	114	56.4	104	50.2	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
C. Age															
< 30 years	9	8.9	4	4.0	9	8.9	6	5.8	28	6.9	18	8.9	10	4.9	<0.001
30-39 years	24	23.8	27	27.0	24	23.8	22	21.4	97	24.0	48	23.8	49	24.1	<0.001
40-49 years	19	18.8	27	27.0	24	23.8	33	32.0	103	25.4	43	21.3	60	29.6	<0.001
50-59 years	22	21.8	20	20.0	16	15.8	20	19.4	78	19.3	38	18.8	40	19.7	<0.001
60-69 years	15	14.9	14	14.0	14	13.9	11	10.7	54	13.3	29	14.4	25	12.3	<0.001
70-79 years	9	8.9	8	8.0	11	10.9	9	8.7	37	9.1	20	9.9	17	8.4	<0.001
80+ years	3	3.0	0	0.0	3	3.0	2	2.0	8	1.7	6	3.0	2	1.0	0.018
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*103*	*100.0*	*405*	*100.0*	*202*	*100.0*	*203*	*100.0*	
Average age (years)		49.2		47.6		49.3		48.4		48.6		49.3		48.0	
D. Marital status															
Married (civil)	41	40.6	40	40.0	23	22.8	26	25.0	130	32.0	64	31.7	66	32.4	<0.001
Married (traditional)	6	5.9	8	8.0	8	7.9	12	11.5	34	8.4	14	6.9	20	9.8	<0.001
Living together	3	3.0	4	4.0	4	4.0	3	2.9	14	3.4	7	3.5	7	3.4	0.003
Widow/widower	25	24.8	22	22.0	43	42.6	35	33.7	125	30.8	68	33.7	57	27.9	<0.001
Divorced/separated	15	14.9	15	15.0	10	9.9	19	18.3	59	14.5	25	12.4	34	16.7	<0.001
Never married	11	10.9	11	11.0	13	12.9	9	8.7	44	10.8	24	11.9	20	9.8	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	

Table B: Socio-economic profile of original sample: Demographics, education, access to medical aid and safety and security

Characteristic	Welkom Affected		Welkom Non-affected		Qwaqwa Affected		Qwaqwa Non-affected		Total		Total Affected		Total Non-Affected		P
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
A. Gender composition															
Male	246	43.5	210	46.2	180	39.7	172	40.1	808	42.5	426	41.8	382	45.2	<0.001
Female	319	56.5	245	53.8	273	60.3	257	59.9	1094	57.5	592	58.2	502	56.8	<0.001
Total	*565*	*100.0*	*455*	*100.0*	*453*	*100.0*	*429*	*100.0*	*1902*	*100.0*	*1018*	*100.0*	*884*	*100.0*	
B. Number of years of schooling															
< 20 years	25	24.8	22	22.0	29	28.7	30	28.9	106	26.1	54	26.7	52	25.4	<0.001
20-39 years	40	39.6	45	45.0	48	47.5	52	50.0	185	45.5	88	43.5	97	47.5	<0.001
40-59 years	24	23.7	27	27.0	20	19.8	17	16.4	88	21.7	44	21.8	44	21.6	<0.001
60-79 years	10	9.9	6	6.0	4	4.0	5	4.8	25	6.1	14	7.0	11	5.4	<0.001
80+ years	2	2.0	0	0.0	0	0.0	0	0.0	2	0.5	2	1.0	0	0.0	
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
Average number of years of schooling		*35.5*		*32.8*		*28.9*		*28.1*		*31.3*		*32.2*		*30.4*	
C. Access to medical aid															
No	88	87.1	77	77.0	94	93.1	86	82.7	345	85.0	182	90.1	163	79.9	<0.001
Yes	13	12.9	23	23.0	7	6.9	18	17.3	61	15.0	20	9.9	41	20.1	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
D. Safety and security															
Very safe	53	52.5	73	73.0	37	36.6	43	41.3	206	50.7	90	44.6	116	56.9	<0.001
Rather safe	30	29.7	22	22.0	36	35.6	25	24.0	113	27.8	66	32.7	47	23.0	<0.001
Rather unsafe	14	13.9	5	5.0	15	14.9	23	22.1	57	14.0	29	14.4	28	13.7	<0.001
Very unsafe	4	4.0	0	0.0	6	5.9	8	7.7	18	4.4	10	5.0	8	3.9	<0.001
Not safe at all	0	0.0	0	0.0	7	6.9	5	4.8	12	3.0	7	3.5	5	2.5	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	

Note: The average number of years was calculated from the highest level of education of each household member, counting each grade completed as one year and counting tertiary qualifications as three years. 'Access to medical aid' means that at least one household member has access to medical aid.

Table C: Socio-economic profile of original sample: Habitation details

Characteristic	Welkom Affected		Welkom Non-affected		Qwaqwa Affected		Qwaqwa Non-affected		Total		Total Affected		Total Non-Affected		P
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
A. Number of dwellings															
Sharing dwelling	11	10.9	3	3.0	1	1.0	1	1.0	16	3.9	12	5.9	4	2.0	0.001
One	65	64.4	84	84.0	81	80.2	81	77.9	311	76.6	146	72.3	165	80.9	<0.001
More than one dwelling	25	24.7	13	13.0	19	18.8	22	21.1	79	19.4	44	21.8	35	17.2	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
B. Main type of dwelling															
Dwelling on separate stand or yard	71	70.3	80	80.0	77	76.2	89	85.6	317	78.1	148	73.3	169	82.8	<0.001
Traditional dwelling	0	0.0	0	0.0	12	11.9	8	7.7	20	4.9	12	5.9	8	3.9	<0.001
Dwelling in backyard	3	3.0	0	0.0	4	4.0	2	1.9	9	2.2	7	3.5	2	1.0	0.011
Informal dwelling in backyard	9	8.9	11	11.0	7	6.9	2	1.9	29	7.1	16	7.9	13	6.4	<0.001
Informal settlement	14	13.9	7	7.0	1	1.0	2	1.9	24	5.9	15	7.4	9	4.4	<0.001
Other	4	4.0	2	2.0	0	0.0	1	1.0	7	1.7	4	2.0	3	1.5	0.030
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
C. Crowding															
Average number of rooms		4.2		4.4		4.2		4.3		4.3		4.2		4.3	0.48
Average number of rooms for sleeping		2.5		2.4		2.1		2.1		2.3		2.3		2.2	0.35
D. Home ownership															
Household owns dwelling	83	83.0	89	89.0	99	98.0	99	95.2	370	91.6	182	91.0	188	92.2	<0.001
Owner if not owned by household:															
- Employer	1	1.0	1	1.0	0	0.0	0	0.0	2	0.5	1	0.5	1	0.5	0.157
- Government	2	2.0	0	0.0	1	1.0	3	2.9	6	1.5	3	1.5	3	1.5	0.050
- Charity organization	1	1.0	1	1.0	0	0.0	0	0.0	2	0.5	1	0.5	1	0.5	0.157
- Private owner	13	13.0	9	9.0	1	1.0	2	1.9	25	6.2	14	7.0	11	5.4	0.001
Total	*100*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*404*	*100.0*	*200*	*100.0*	*204*	*100.0*	

Table D: Socio-economic profile of original sample: Communication and access to services

Characteristic	Welkom Affected		Welkom Non-affected		Qwaqwa Affected		Qwaqwa Non-affected		Total		Total Affected		Total Non-Affected		P
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
A. Telephone															
Someone owns a cellular phone	20	19.8	40	40.0	22	21.8	38	36.5	120	29.6	42	20.8	78	38.2	<0.001
Has a telephone in dwelling	29	28.7	42	42.0	17	16.8	23	22.1	111	27.3	46	22.8	65	31.9	<0.001
Has either a cellular phone or telephone	7	6.9	24	24.0	5	5.0	13	12.5	49	12.1	12	5.9	37	18.1	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
B. Sanitation															
Flush toilet in dwelling	42	41.6	52	52.0	31	30.7	36	35.3	161	39.9	73	36.1	88	43.6	<0.001
Flush toilet on site	43	42.6	38	38.0	15	14.9	9	8.8	105	26.0	58	28.7	47	23.3	<0.001
Pit latrine on site	13	12.9	7	7.0	53	52.5	54	52.9	127	31.4	66	32.7	61	30.2	<0.001
Other sources of supply	3	3.0	3	3.0	2	2.0	3	1.7	11	2.7	5	2.5	6	3.0	0.012
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*102*	*100.0*	*404*	*100.0*	*202*	*100.0*	*202*	*100.0*	
C. Water supply															
Piped water in dwelling	46	46.0	58	58.0	44	43.6	43	41.3	191	47.2	90	44.8	101	49.5	<0.001
Piper water on site	29	29.0	22	22.0	23	22.8	20	19.2	94	23.2	52	25.9	42	20.6	<0.001
Public tap	13	13.0	10	10.0	34	33.7	41	39.4	98	24.2	47	23.4	51	25.0	<0.001
Piped water at neighbors	9	9.0	10	10.0	0	0.0	0	0.0	19	4.7	9	4.5	0	0.0	<0.001
Other sources of supply	3	3.0	0	0.0	0	0.0	0	0.0	3	0.6	3	1.5	0	0.0	
Total	*100*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*405*	*100.0*	*201*	*100.0*	*204*	*100.0*	
D. Refuse removal															
Removed at least once a week	92	91.1	93	93.0	48	47.5	52	50.0	285	70.2	140	69.3	145	71.1	<0.001
Removed less often by community members	0	0.0	0	0.0	1	1.0	0	0.0	1	0.2	1	0.5	0	0.0	<0.001
Communal refuse dump	5	5.0	6	6.0	1	1.0	0	0.0	12	3.0	6	3.0	6	2.9	0.002
Own refuse dump	2	2.0	0	0.0	35	34.7	36	34.6	73	18.0	37	18.3	36	17.6	<0.001
No refuse removal	2	2.0	1	1.0	16	15.8	16	15.4	35	8.6	18	8.9	17	8.3	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	

Table E: Socio-economic profile of original sample: Energy use

Characteristic	Welkom Affected		Welkom Non-affected		Qwaqwa Affected		Qwaqwa Non-affected		Total		Total Affected		Total Non-Affected		P
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
A. Energy source for cooking															
Electricity	76	75.2	83	83.0	36	35.6	58	55.8	253	62.3	112	55.4	141	69.1	<0.001
Paraffin	23	22.8	16	16.0	30	29.7	29	27.9	98	24.1	53	26.2	45	22.1	<0.001
Coal	0	0.0	0	0.0	31	30.7	12	11.5	43	10.6	31	15.3	12	5.9	<0.001
Other	2	2.0	1	1.0	4	0.9	5	1.2	12	2.9	6	3.0	6	3.0	0.018
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	
B. Energy source for heating															
Electricity	57	57.6	65	65.0	26	26.0	42	40.4	190	47.1	83	41.7	107	52.5	<0.001
Paraffin	23	23.2	17	17.0	15	15.0	14	13.5	69	17.1	38	19.1	31	15.2	<0.001
Coal	2	2.0	1	1.0	49	49.0	41	39.4	93	23.1	51	25.6	42	20.6	<0.001
Other	17	17.1	17	17.0	10	10.0	7	6.8	51	12.6	27	11.5	24	11.7	
Total	*99*	*100.0*	*100*	*100.0*	*100*	*100.0*	*104*	*100.0*	*403*	*100.0*	*199*	*100.0*	*204*	*100.0*	
C. Energy source for lighting															
Electricity	82	81.2	86	86.0	70	69.3	77	74.0	315	77.6	152	75.2	163	79.9	<0.001
Paraffin	4	4.0	3	3.0	4	4.0	3	2.9	14	3.4	8	4.0	6	2.9	0.003
Candles	15	14.9	11	11.0	27	26.7	24	23.1	77	19.0	42	20.8	35	17.2	<0.001
Total	*101*	*100.0*	*100*	*100.0*	*101*	*100.0*	*104*	*100.0*	*406*	*100.0*	*202*	*100.0*	*204*	*100.0*	

Table F: Socio-economic profile of original sample: Migration

Characteristic	Welkom Affected		Welkom Non-affected		Qwaqwa Affected		Qwaqwa Non-affected		Total		Total Affected		Total Non-Affected		P
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
Total no. of respondents	101	100.0	100	100.0	101	100.0	104	100.0	406	100.0	202	100.0	204	100.0	
Respondents still living at place of birth	8	7.9	6	6.0	15	14.9	15	14.4	44	10.8	23	11.4	21	10.3	<0.001
Respondents not living at place of birth	93	92.1	94	94.0	89	85.1	89	85.6	362	89.2	179	88.6	183	89.7	<0.001
A. Previous residence															
(i) Place of residence															
Rural area	11	12.0	5	5.4	33	38.8	34	38.2	83	23.1	44	24.9	39	21.4	<0.001
Urban area	78	84.8	87	93.5	32	37.6	35	39.3	232	64.6	110	62.1	122	67.0	<0.001
Commercial farm	1	1.1	0	0.0	19	22.4	20	22.5	40	11.1	20	11.3	20	11.0	<0.001
Other	2	2.2	1	1.1	1	1.2	0	0.0	4	1.1	3	1.7	1	0.5	0.083
Total	*92*	*100.0*	*93*	*100.0*	*85*	*100.0*	*89*	*100.0*	*359*	*100.0*	*177*	*100.0*	*182*	*100.0*	
(ii) Main reason for leaving previous place of residence															
Marriage-related reason	19	20.7	14	15.1	15	17.6	27	30.3	75	20.9	34	19.2	41	22.5	<0.001
Work-related reason	38	41.3	41	44.1	13	15.3	23	25.8	115	32.0	51	28.8	64	35.2	<0.001
Moved to a new house	33	35.9	36	38.7	47	55.3	35	39.3	151	42.1	80	45.2	71	39.0	<0.001
Other	2	2.2	2	2.2	10	11.9	4	4.4	18	5.0	12	6.8	6	3.2	
Total	*92*	*100.0*	*93*	*100.0*	*85*	*100.0*	*89*	*100.0*	*359*	*100.0*	*177*	*100.0*	*182*	*100.0*	
B. Residence at birth															
(i) Place of residence															
Rural area	34	36.6	25	26.6	22	25.6	23	25.8	104	28.7	56	31.3	48	26.2	<0.001
Urban area	52	55.9	55	58.5	29	33.7	30	33.7	166	45.9	81	45.3	85	46.4	<0.001
Commercial farm	7	7.5	13	13.8	35	40.7	35	39.3	90	24.9	42	23.5	48	26.2	<0.001
Other	0	0.0	1	1.1	0	0.0	1	1.1	2	0.6	0	0.0	2	1.0	0.157
Total	*93*	*100.0*	*94*	*100.0*	*86*	*100.0*	*89*	*100.0*	*362*	*100.0*	*179*	*100.0*	*183*	*100.0*	
(ii) Main reason for leaving previous place of residence															
Marriage-related reason	6	6.5	9	9.6	10	11.6	24	27.0	49	13.5	16	8.9	33	18.0	<0.001
Work-related reason	18	19.4	13	13.8	23	26.7	13	14.6	67	18.5	41	22.9	26	14.2	<0.001
Moved to a new house	66	71.0	71	75.5	39	45.3	38	42.7	214	59.1	105	58.7	109	59.6	<0.001
Other	3	3.3	1	1.1	14	15.2	14	15.7	32	9.0	17	9.7	15	8.1	
Total	*93*	*100.0*	*94*	*100.0*	*86*	*100.0*	*89*	*100.0*	*362*	*100.0*	*179*	*100.0*	*183*	*100.0*	

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